

Figure 2

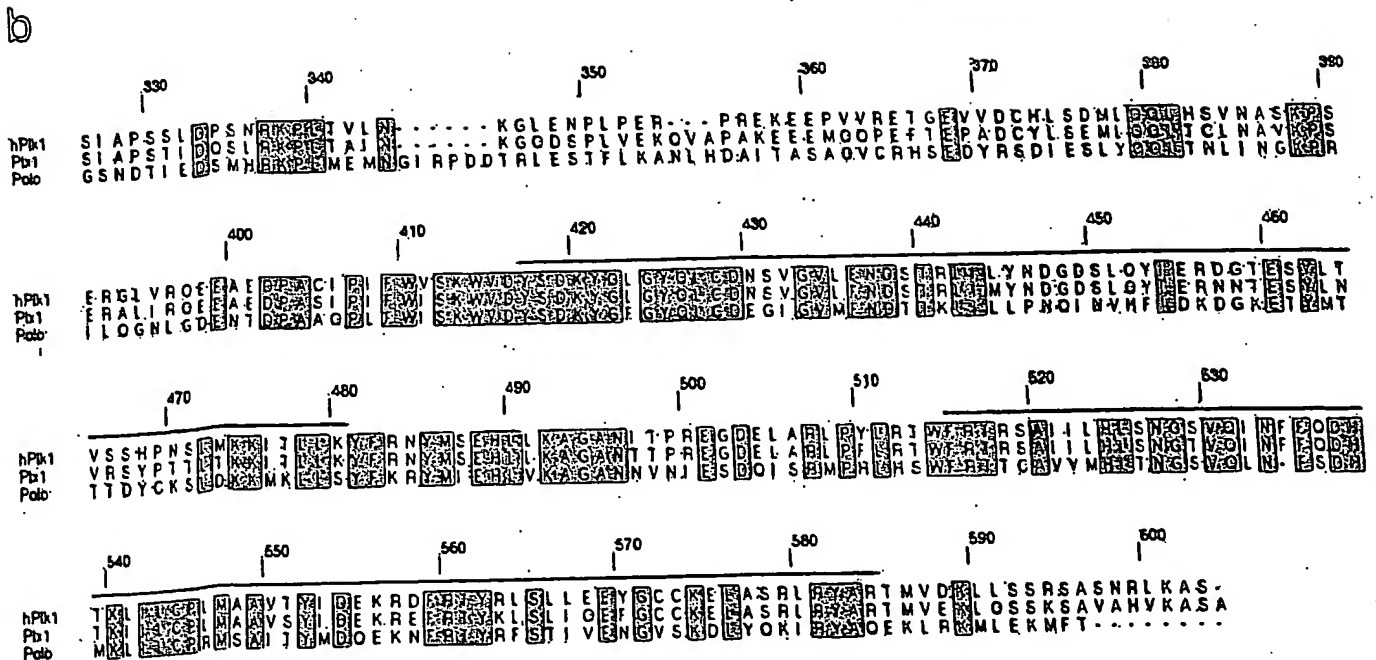
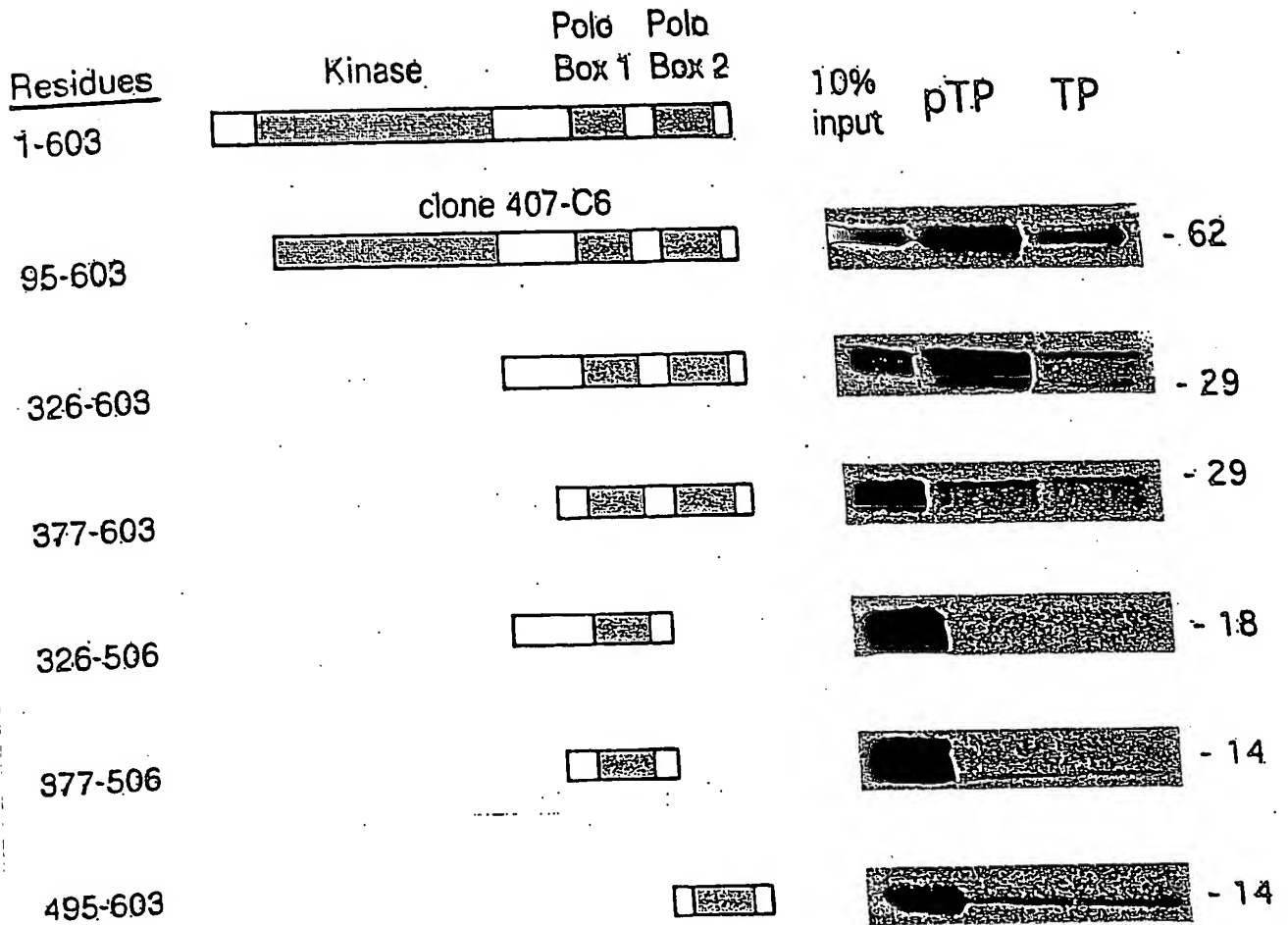
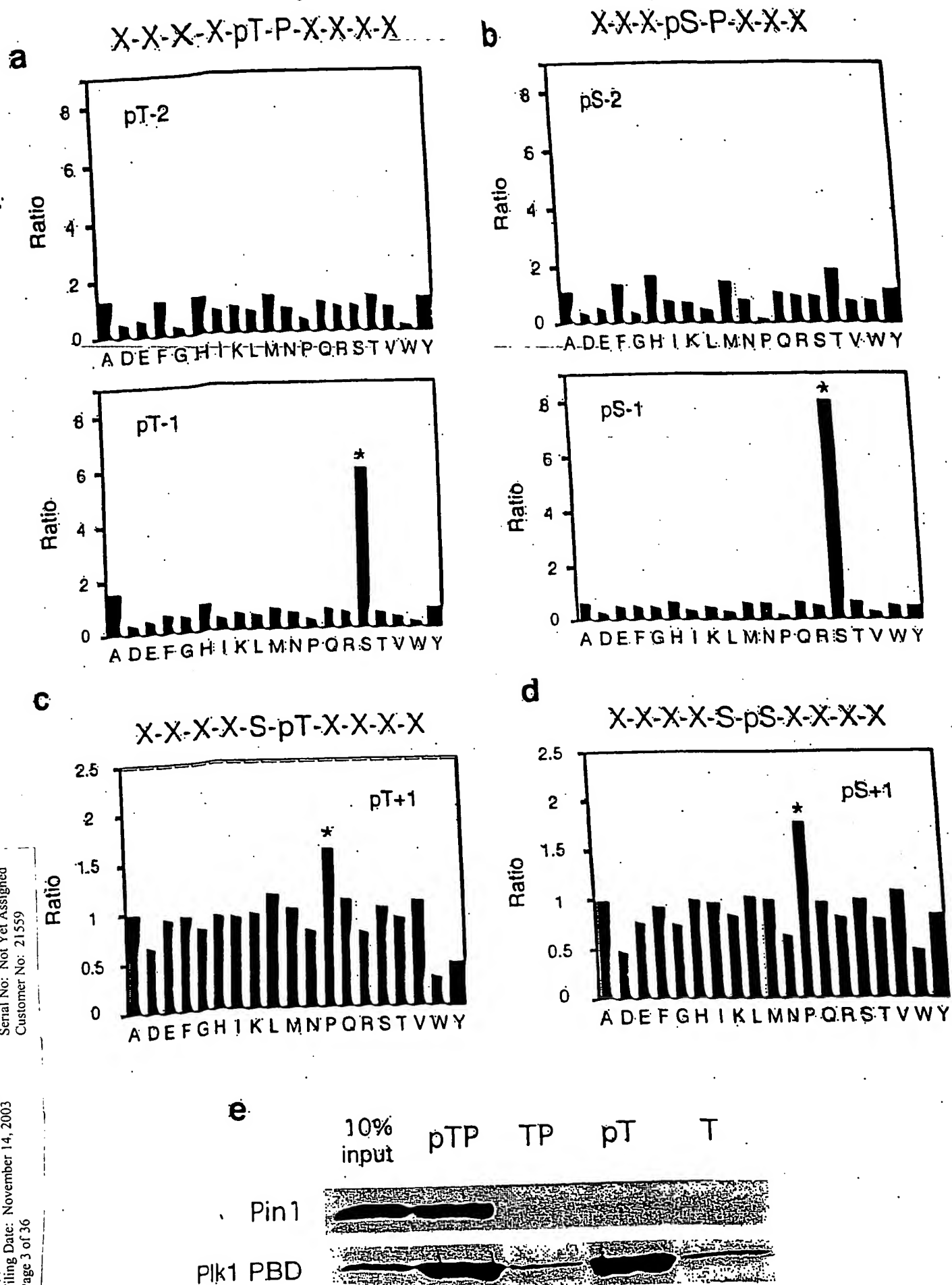
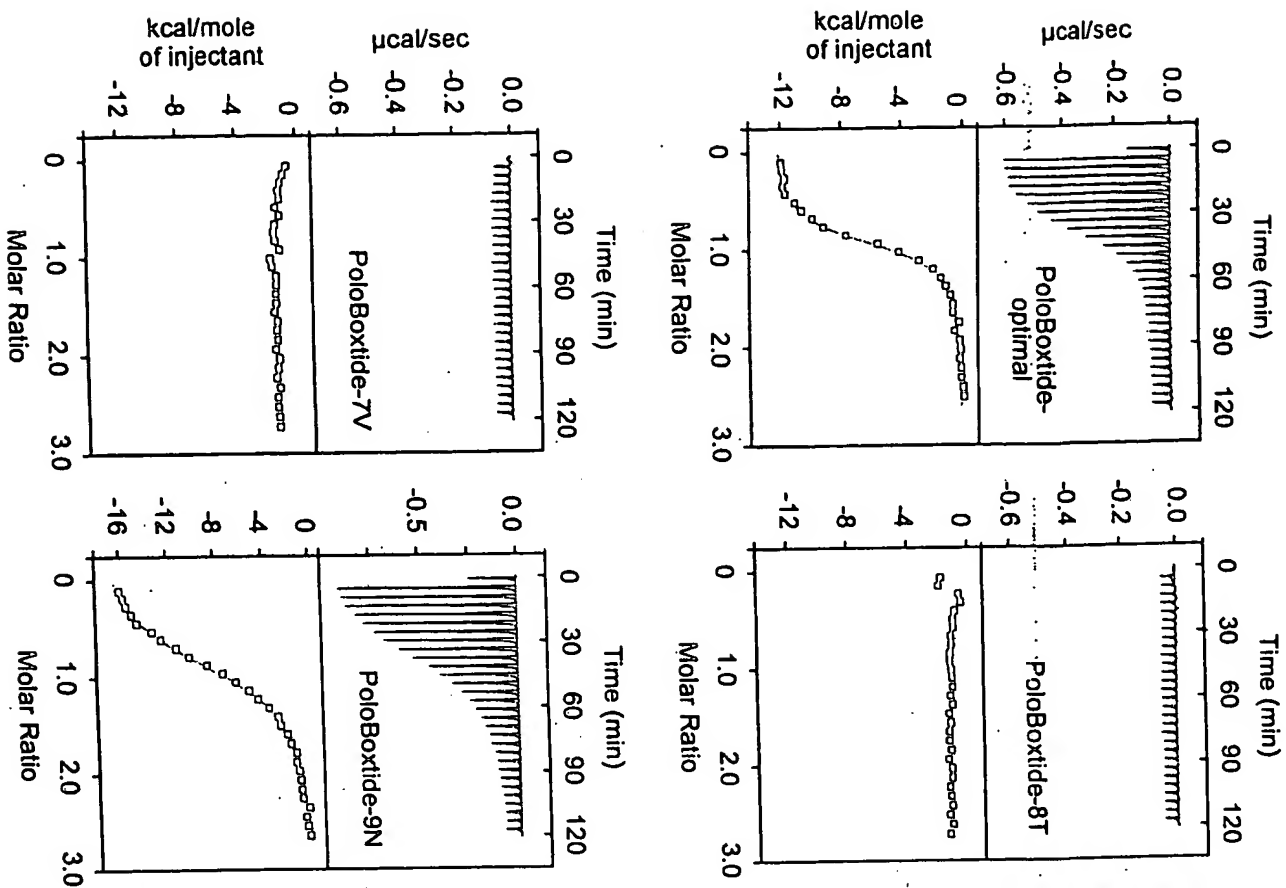


Figure 3





Peptide binding affinities for the Plk1 Polo Box Domain		
Peptide name	Peptide sequence	K _d
PoloBoxide-optimal	MAGPMQ-S-pT-P-LNGAKK	280 ± 27 nM
Effect of pT		
PoloBoxide-8T	MAGPMQ-S-T-P-LNGAKK	N.D.B.
PoloBoxide-8pS	MAGPMQ-S-pS-P-LNGAYKK	2.1µM
PoloBoxide-8pY	MAGPMQ-S-pY-P-LNGAYKK	N.D.B.
Effect of serine at pT-1 position		
PoloBoxide-7V	MAGPMQ-V-pT-P-LNGAKK	N.D.B.
PoloBoxide-7A	MAGPMQ-A-pT-P-LNGAYKK	N.D.B.
PoloBoxide-7G	MAGPMQ-G-pT-P-LNGAYKK	N.D.B.
PoloBoxide-7C	MAGPMQ-C-pT-P-LNGAYKK	N.D.B.
PoloBoxide-7T	MAGPMQ-T-pT-P-LNGAYKK	N.D.B.
Effect of proline at pT+1 position		
PoloBoxide-9N	MAGPMQ-S-pT-N-LNGAKK	1.5µM

Figure 4

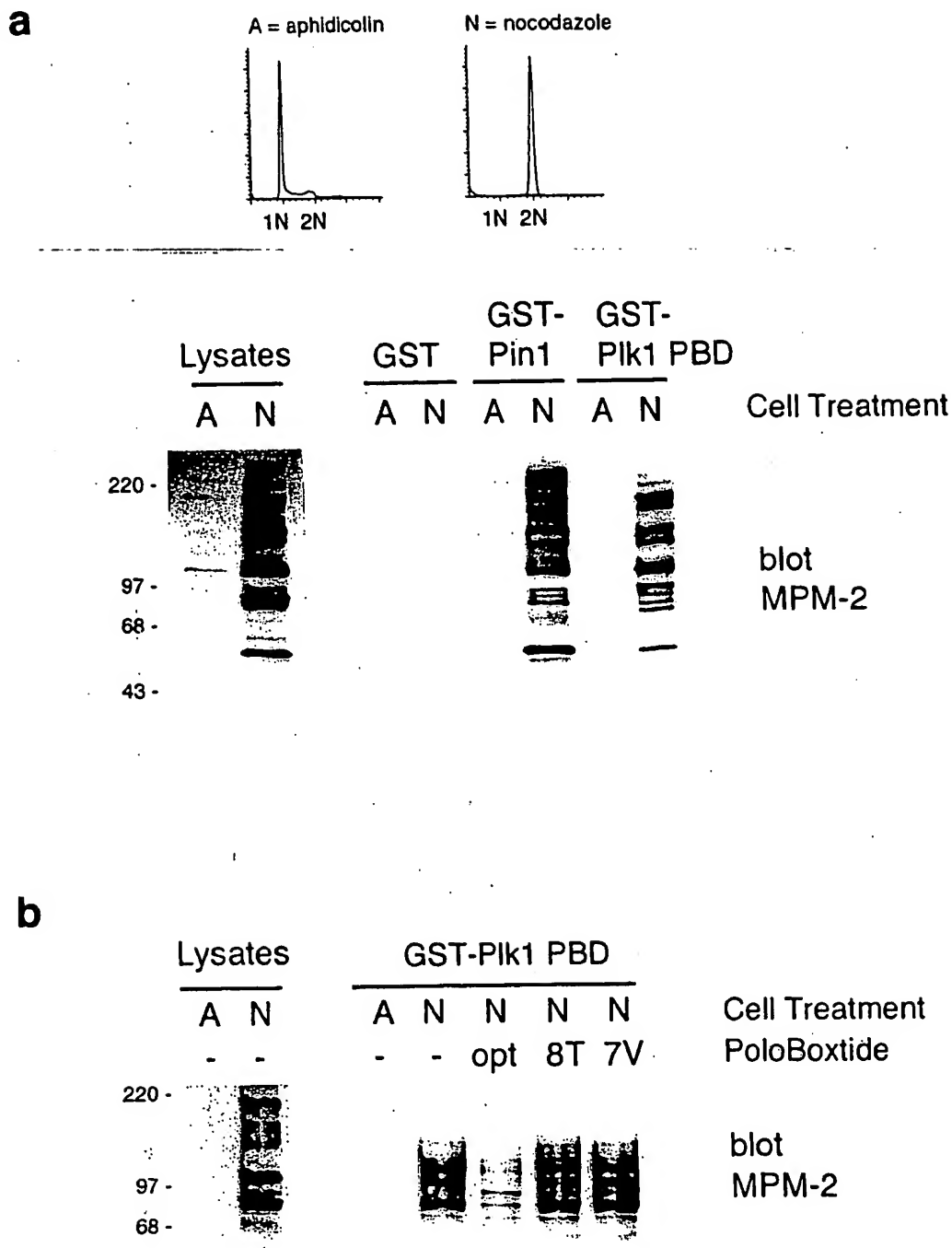


Figure 5

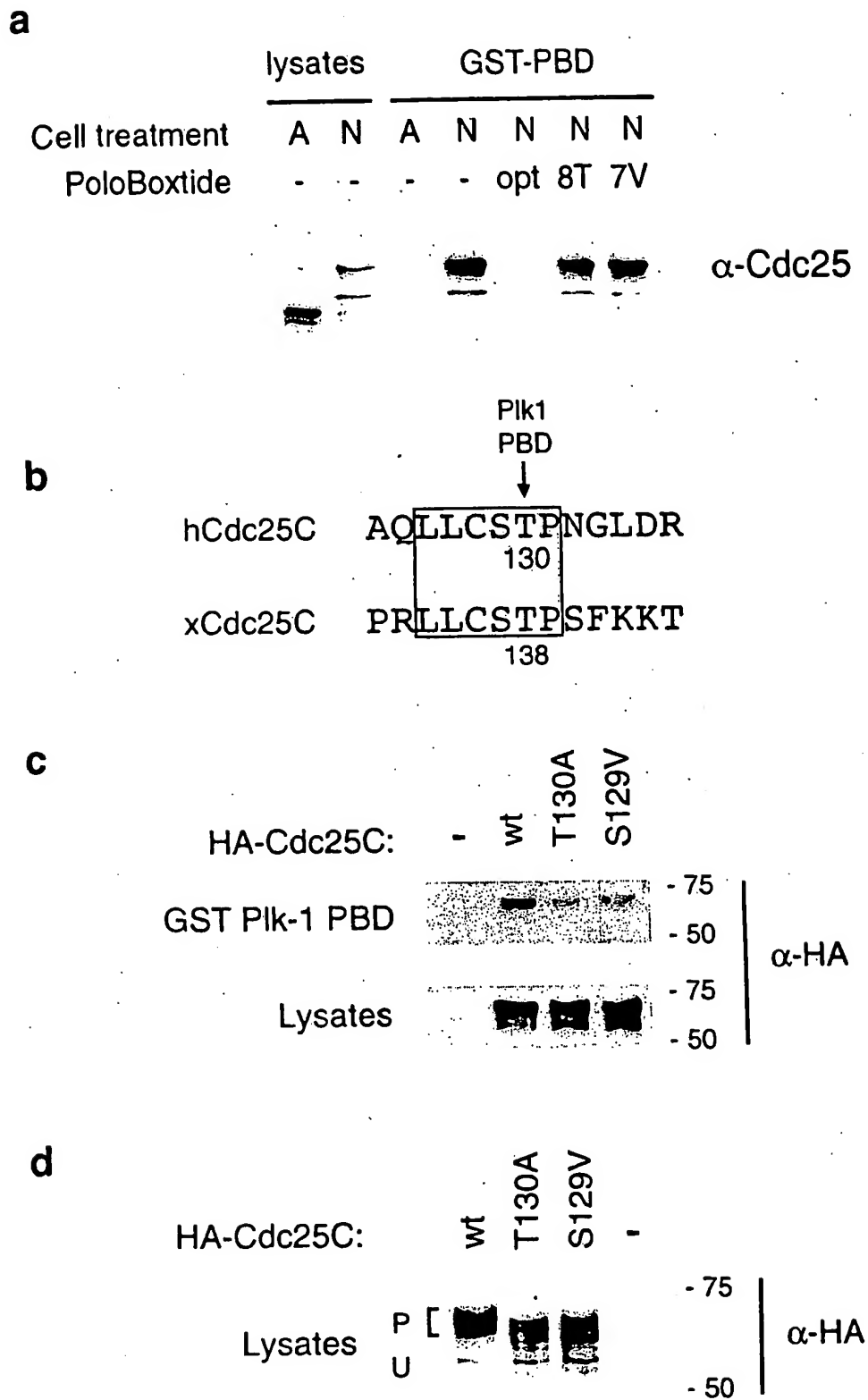


Figure 6

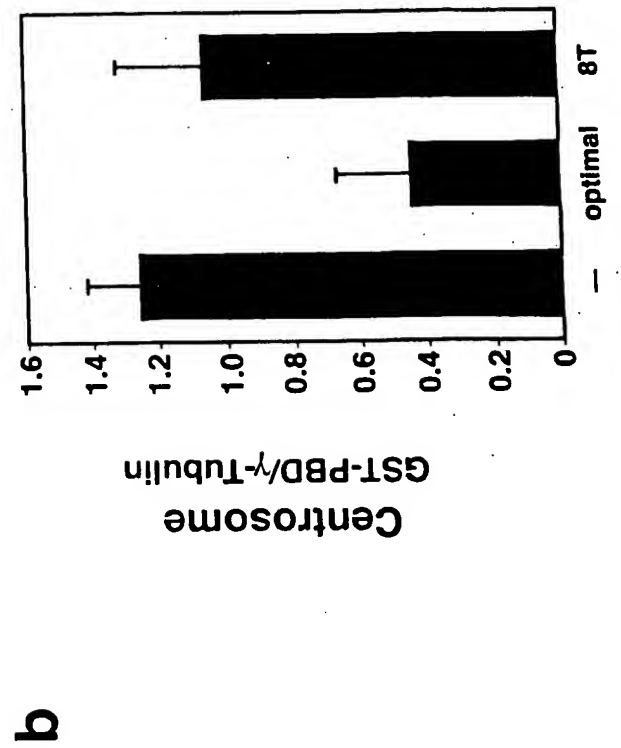
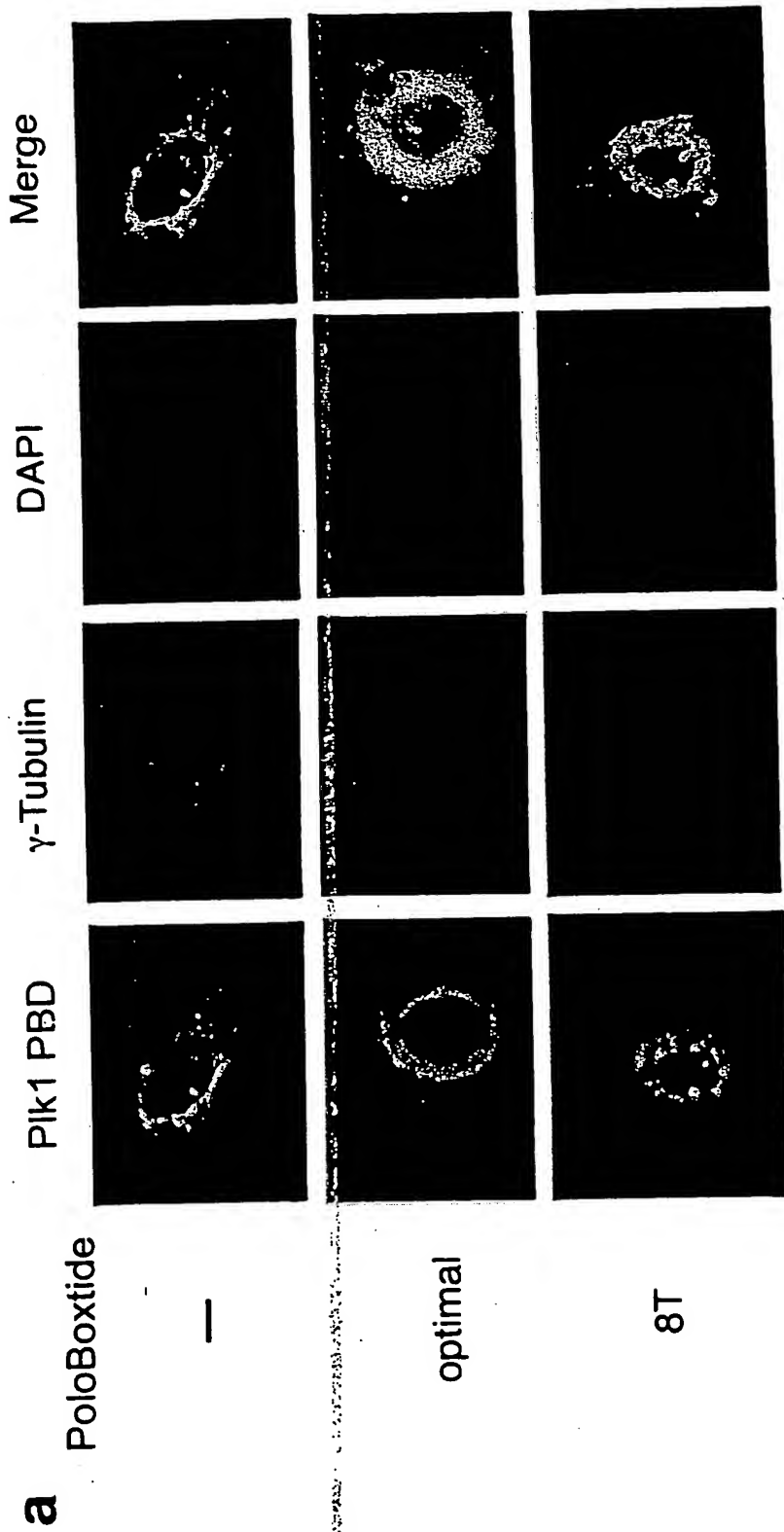


Figure 7

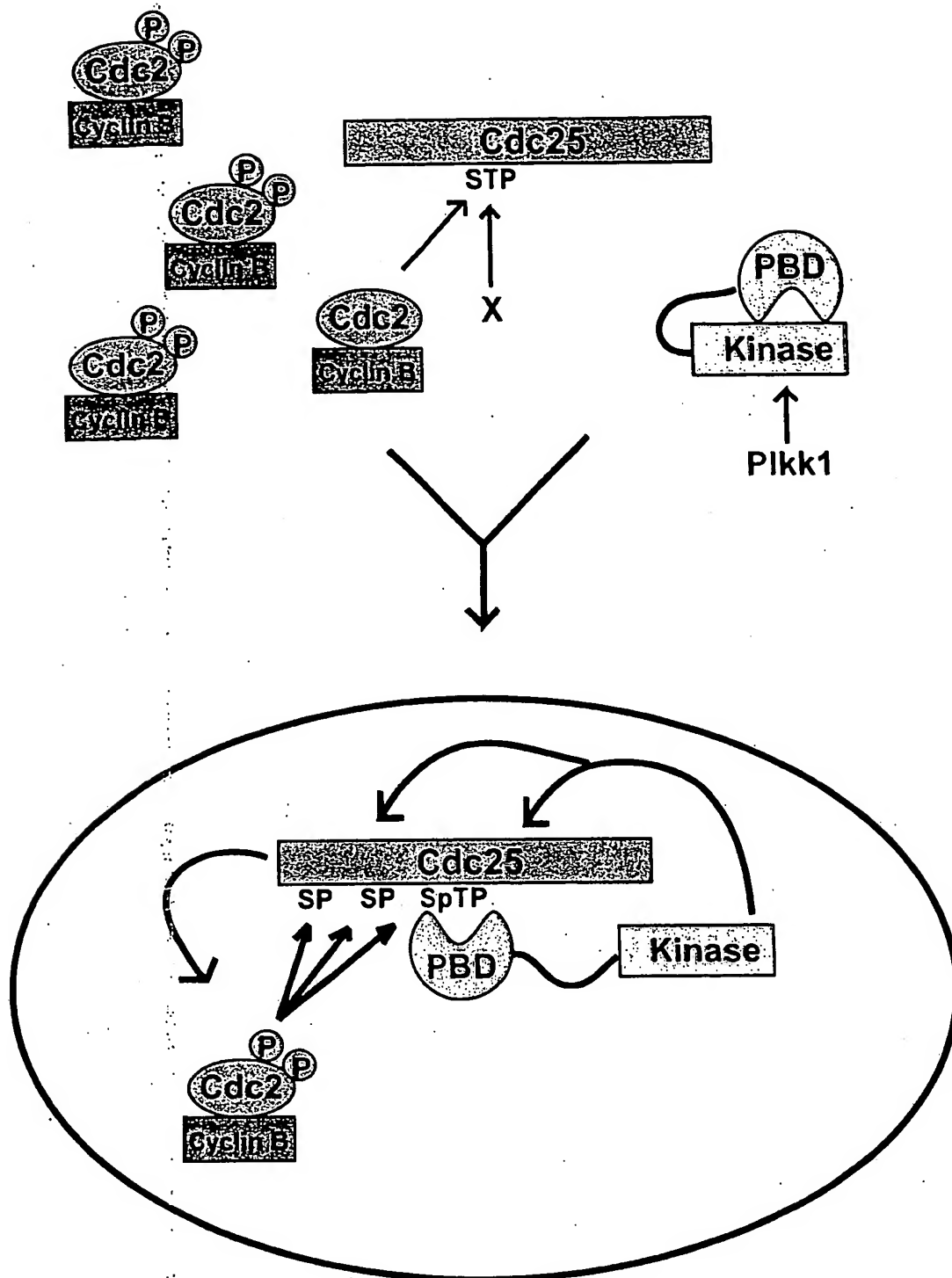


Figure 8

A

pT-1 serine analogues abolish PIK1 PBD: peptide binding in solution

Peptide name	Peptide sequence	K_d
PoloBoxide-optimal	MAGPMQ-S-pT-P-LNGAKK	280 ± 27 nM
PoloBoxide-7A	MAGPMQ-A-pT-P-LNGAYKK	N.D.B.
PoloBoxide-7G	MAGPMQ-G-pT-P-LNGAYKK	N.D.B.
PoloBoxide-7C	MAGPMQ-C-pT-P-LNGAYKK	N.D.B.
PoloBoxide-7T	MAGPMQ-T-pT-P-LNGAYKK	N.D.B.

B

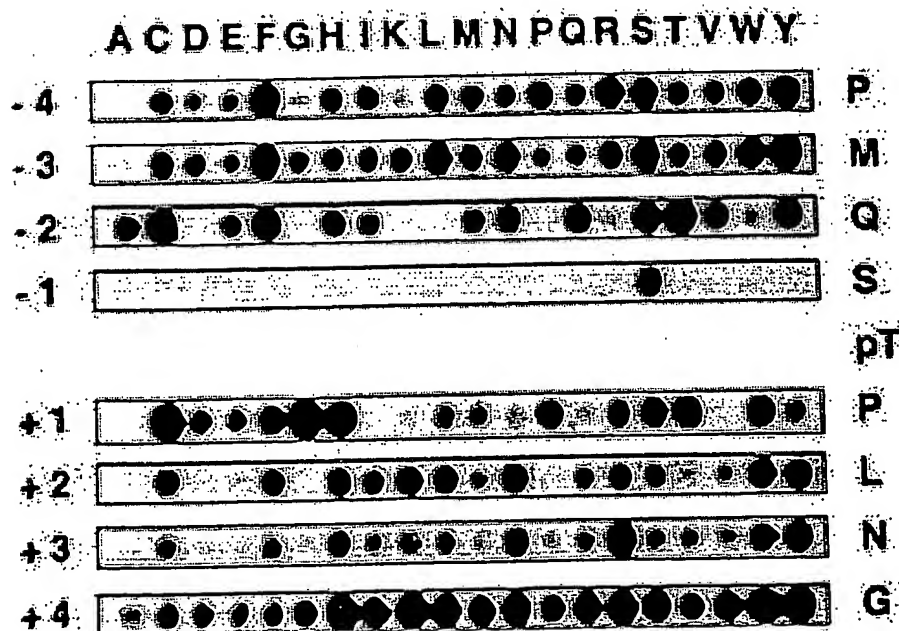


Figure 9

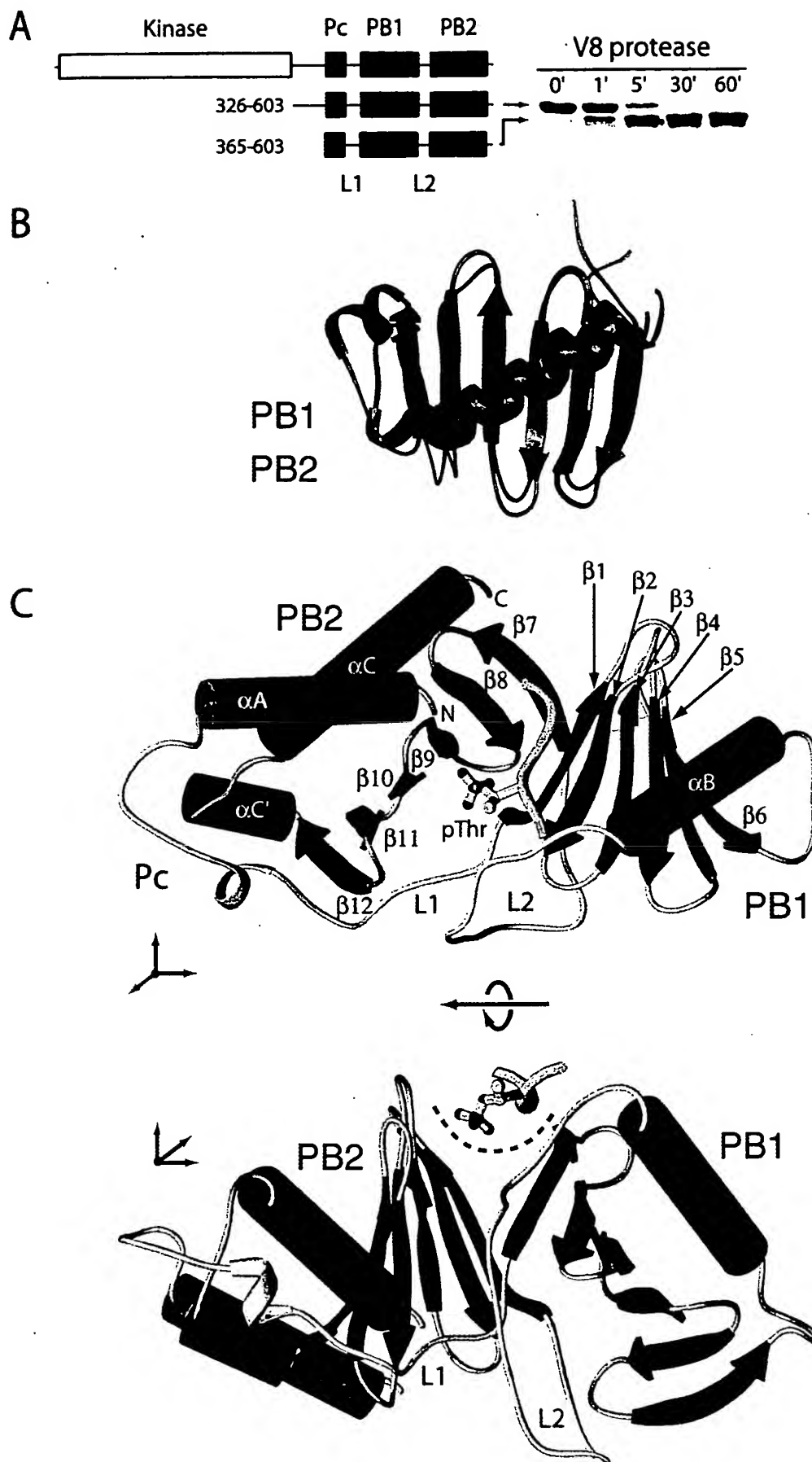
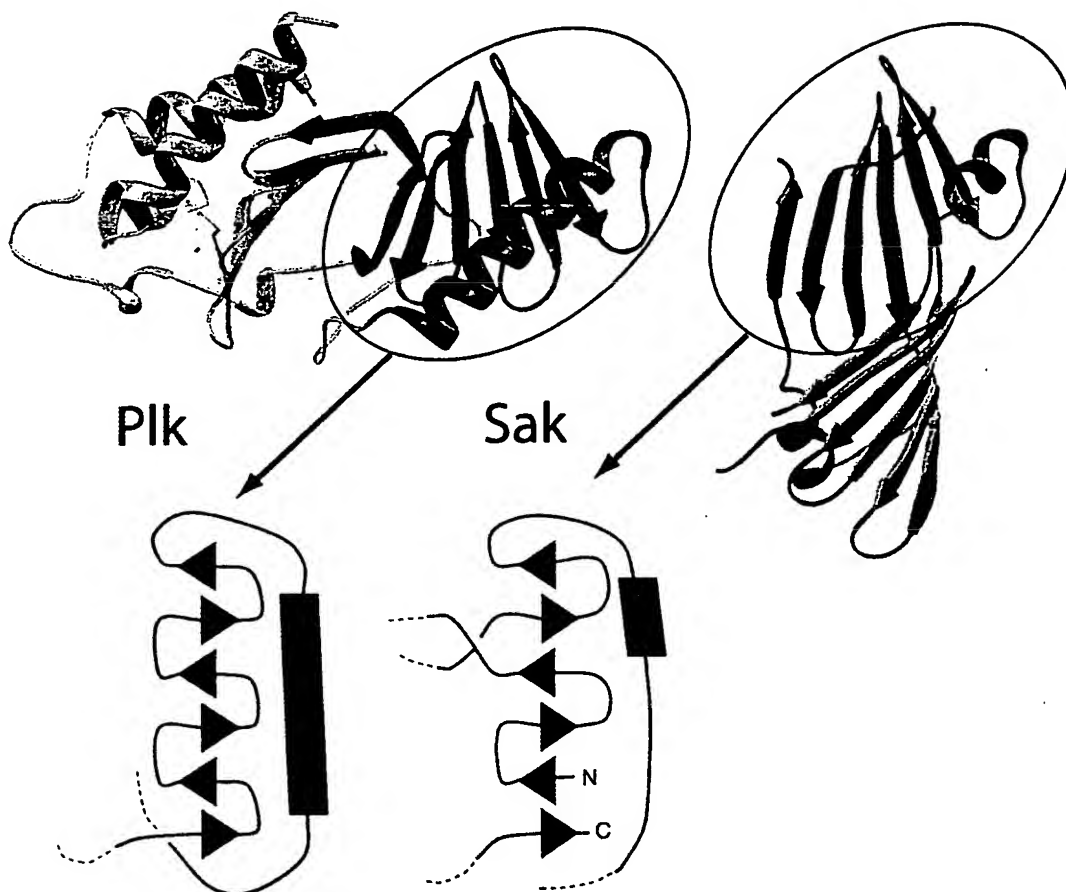


Figure 10



Figure 11

A



B

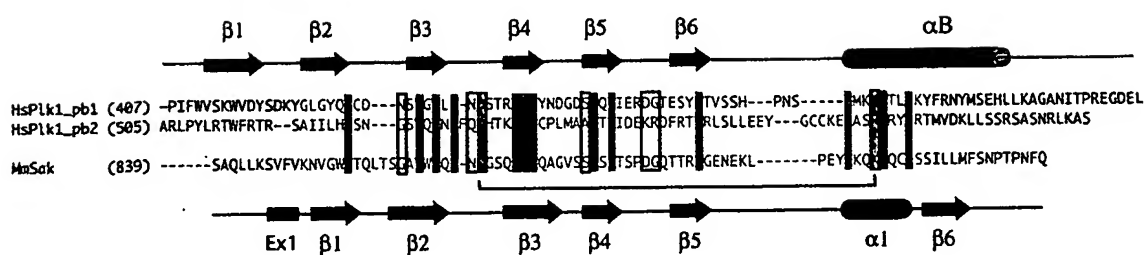


Figure 12

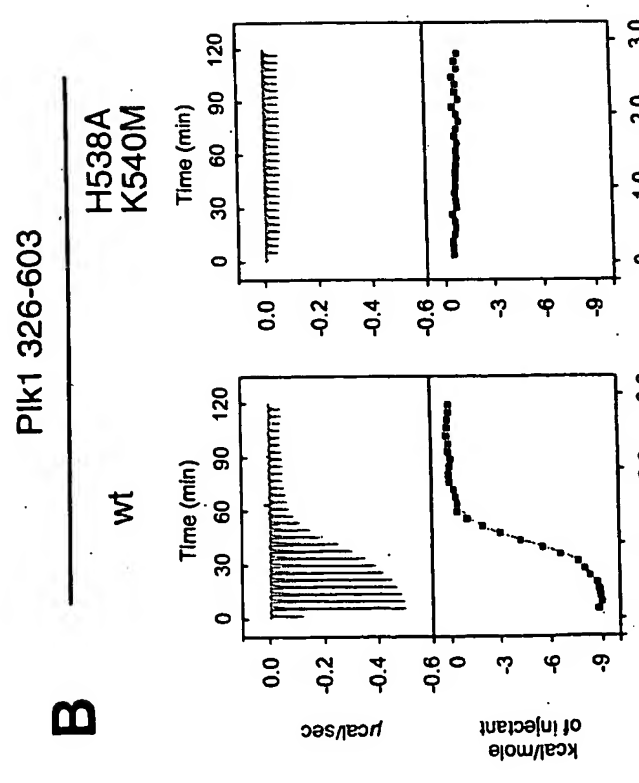
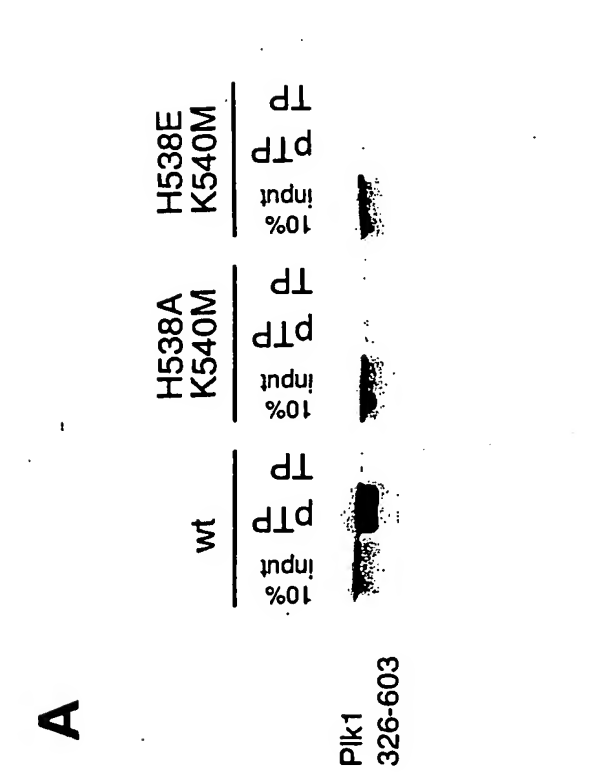
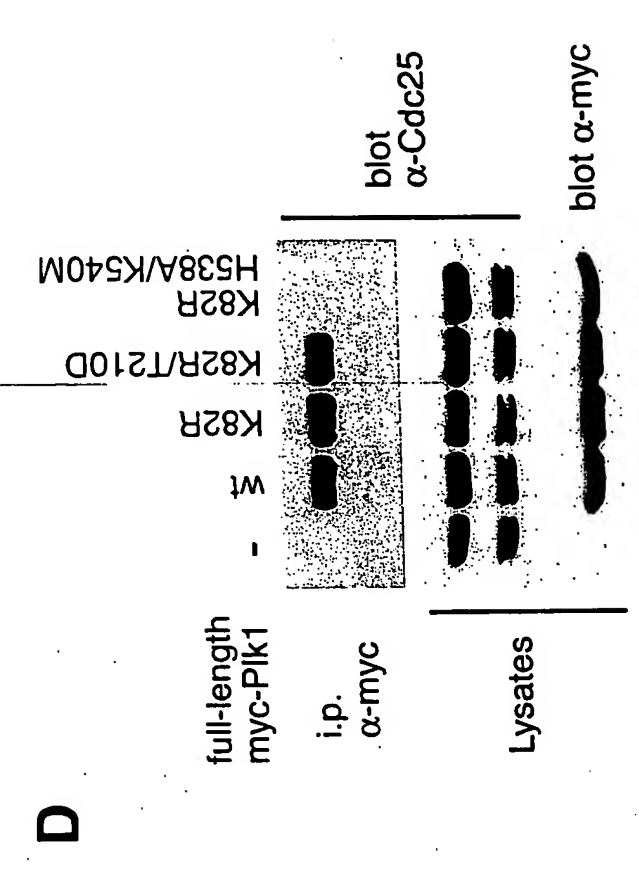
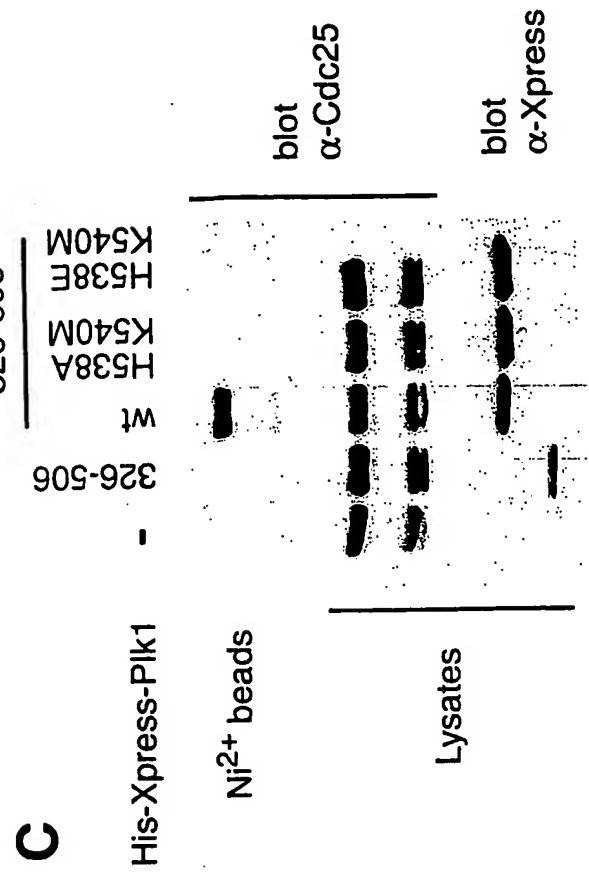


Figure 13

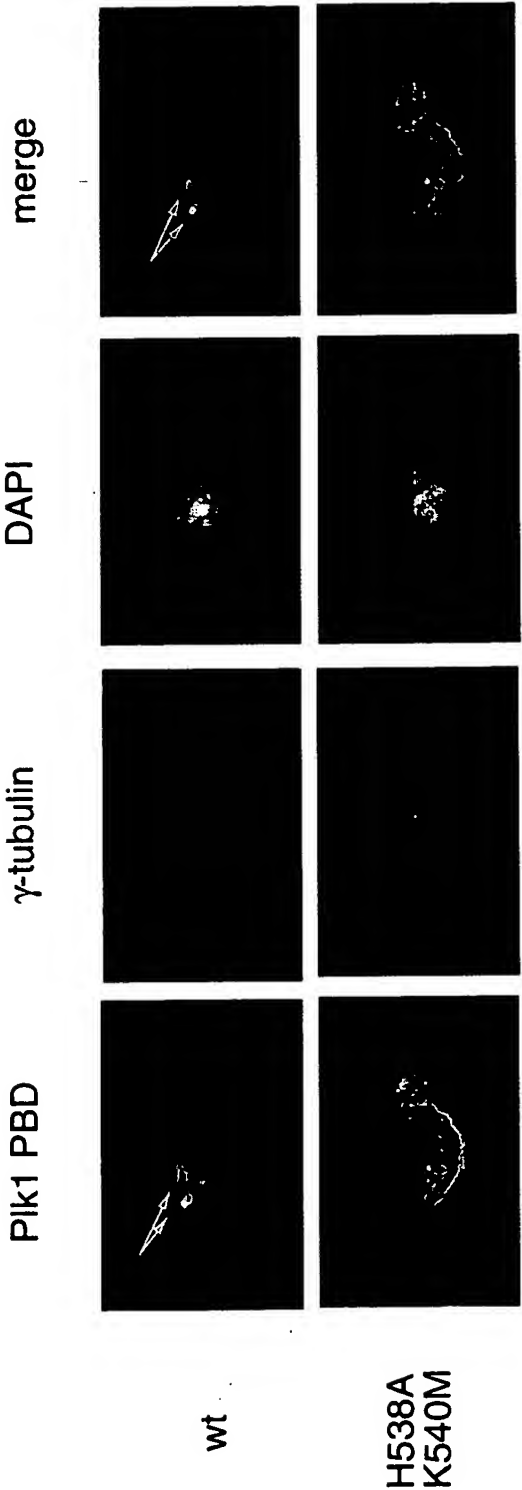


Figure 14

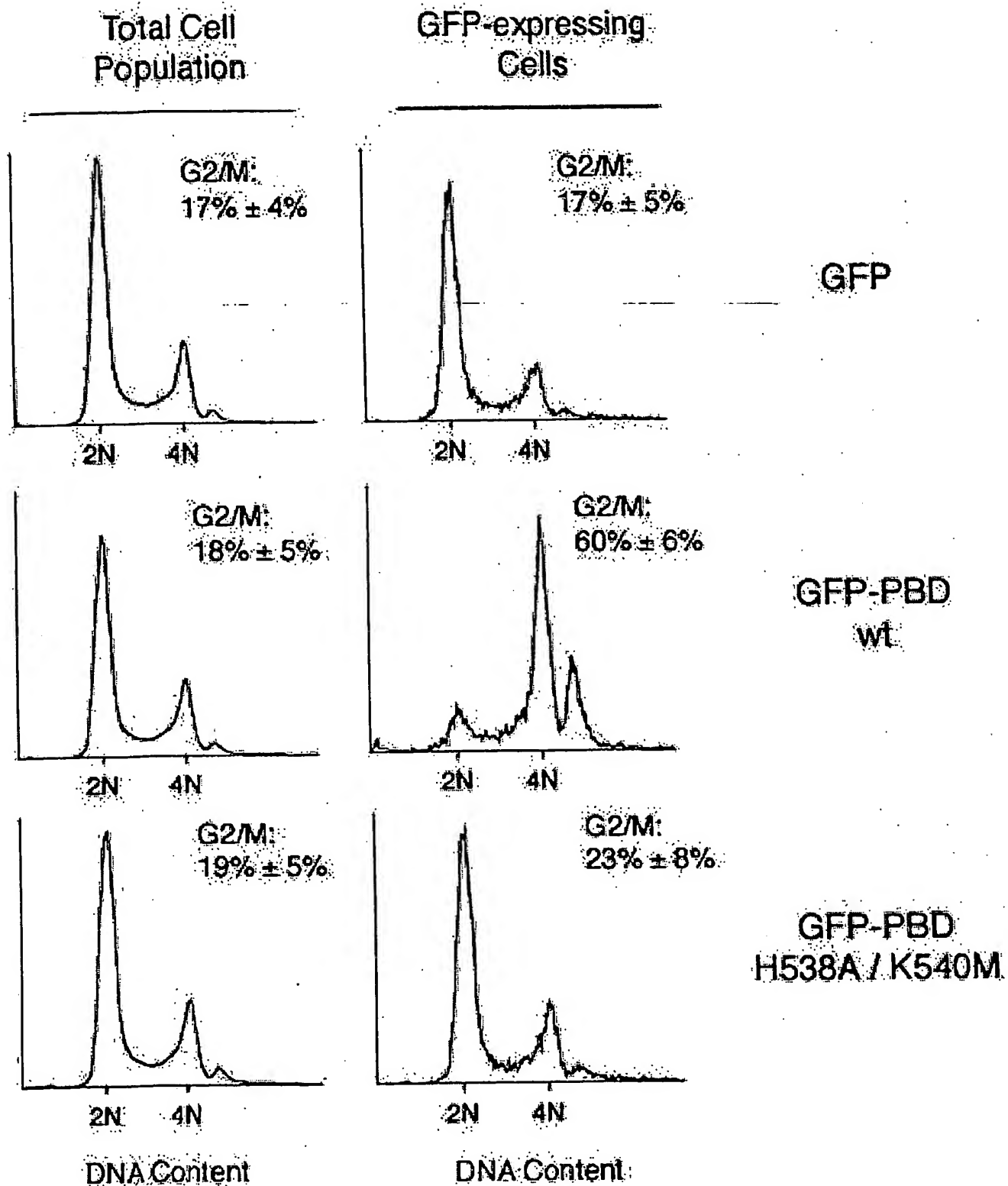
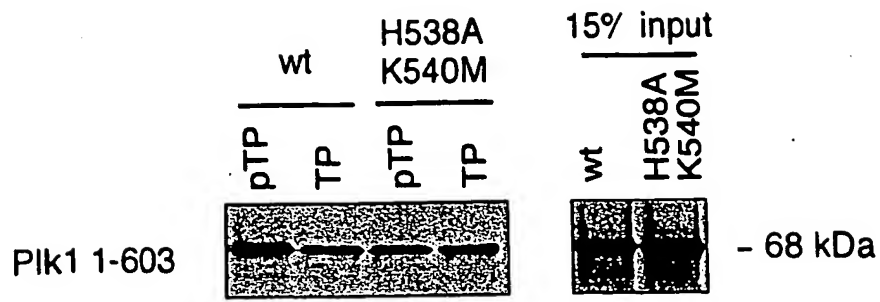
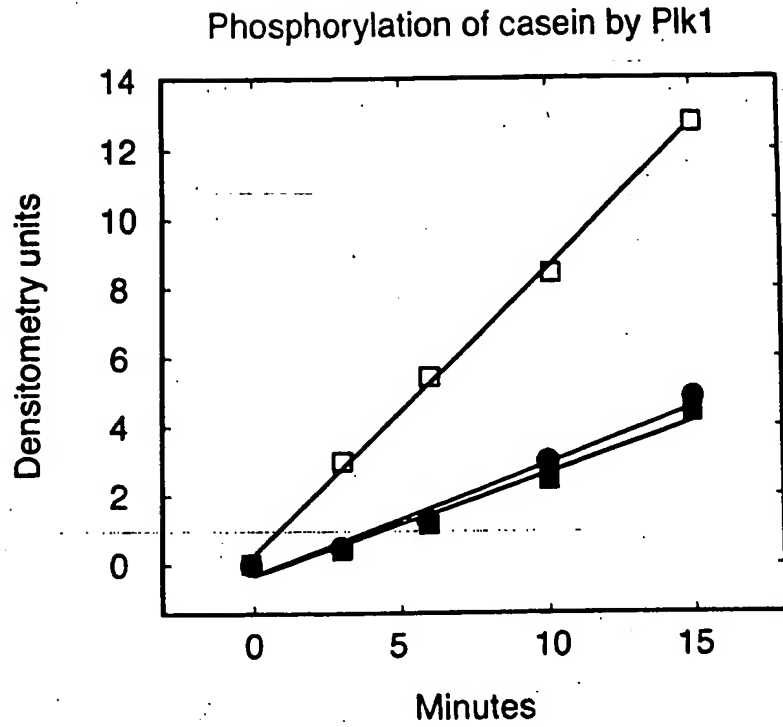


Figure 15

A



B



C

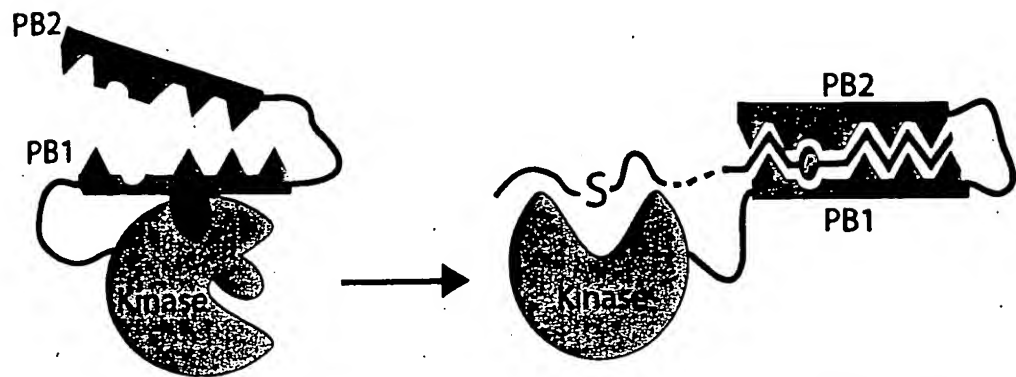
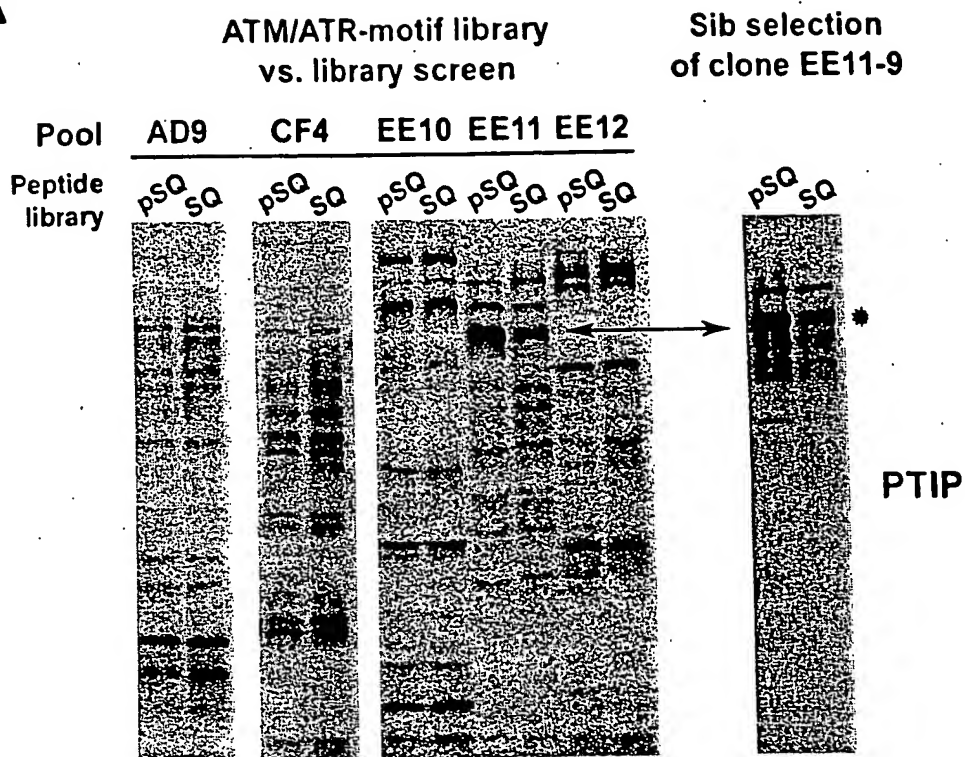
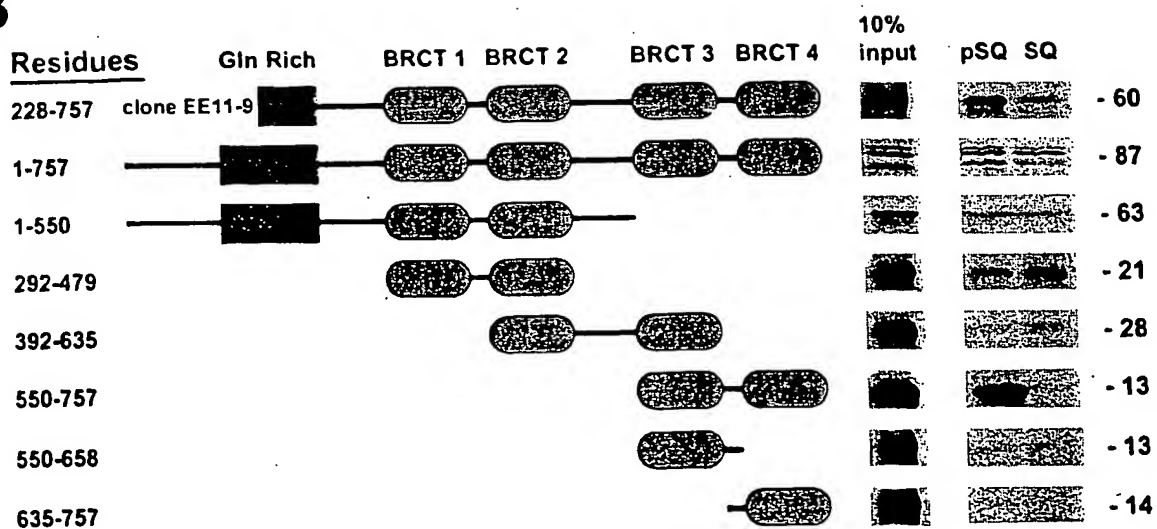


Figure 16

A



B



Manke et al., Figure 1

BEST AVAILABLE COPY

Figure 17

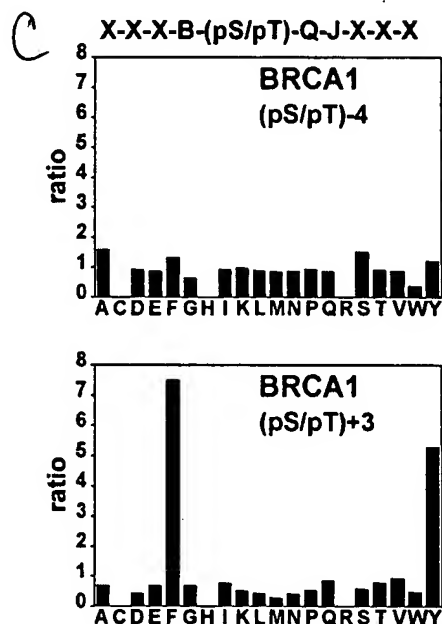
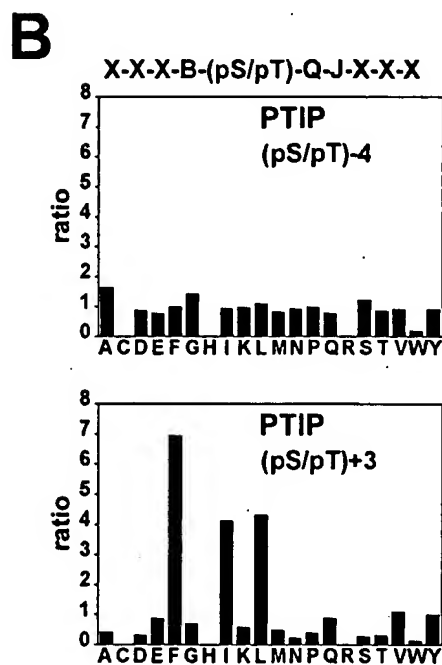
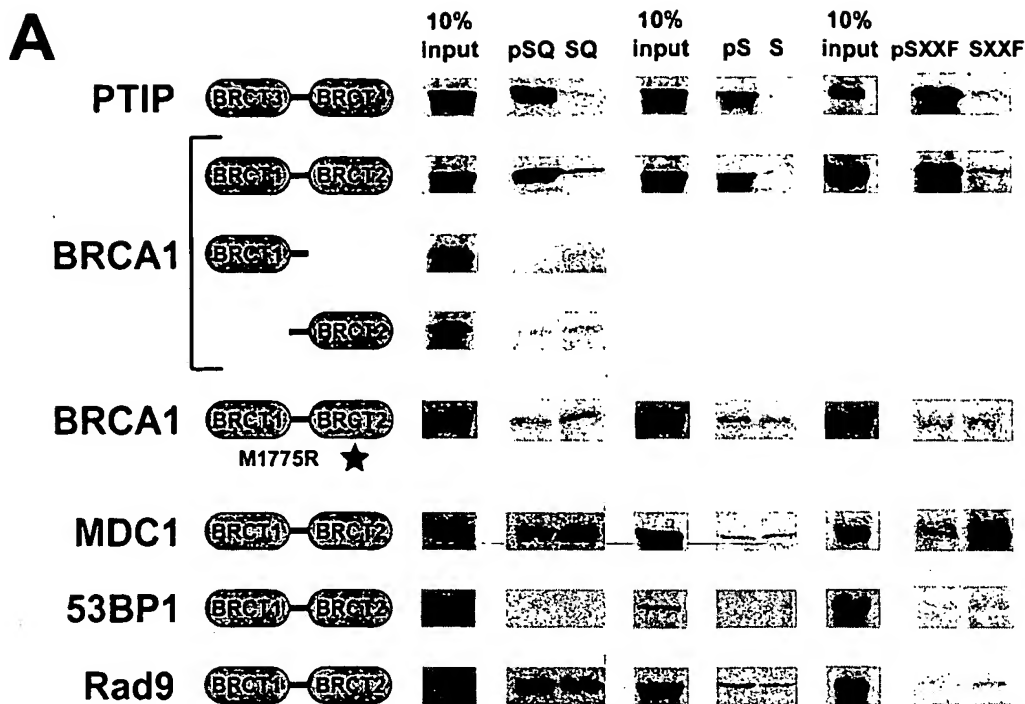
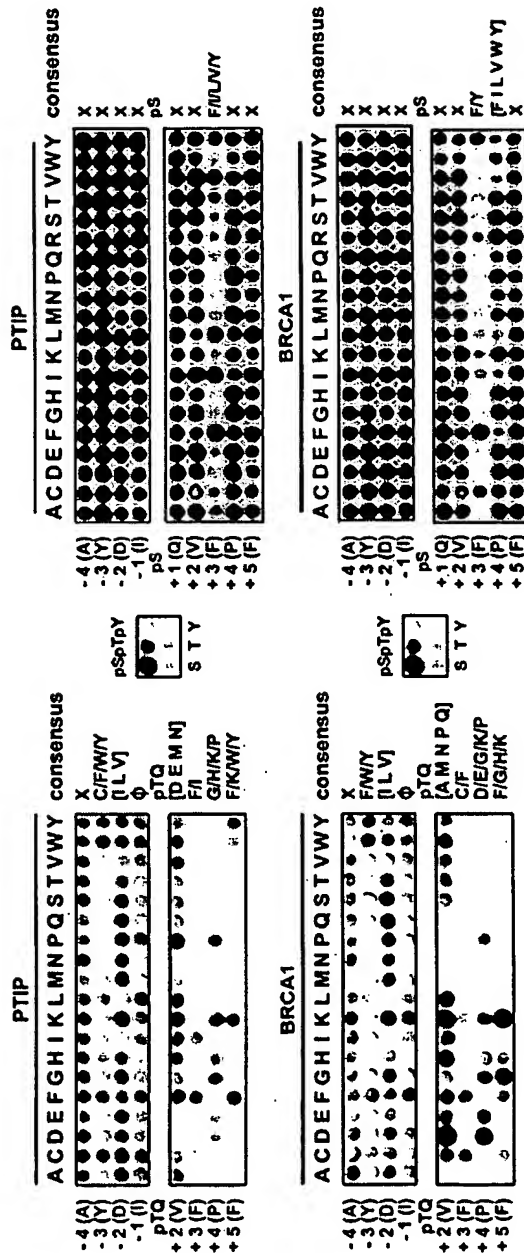


Figure 18A, 18B, 18C



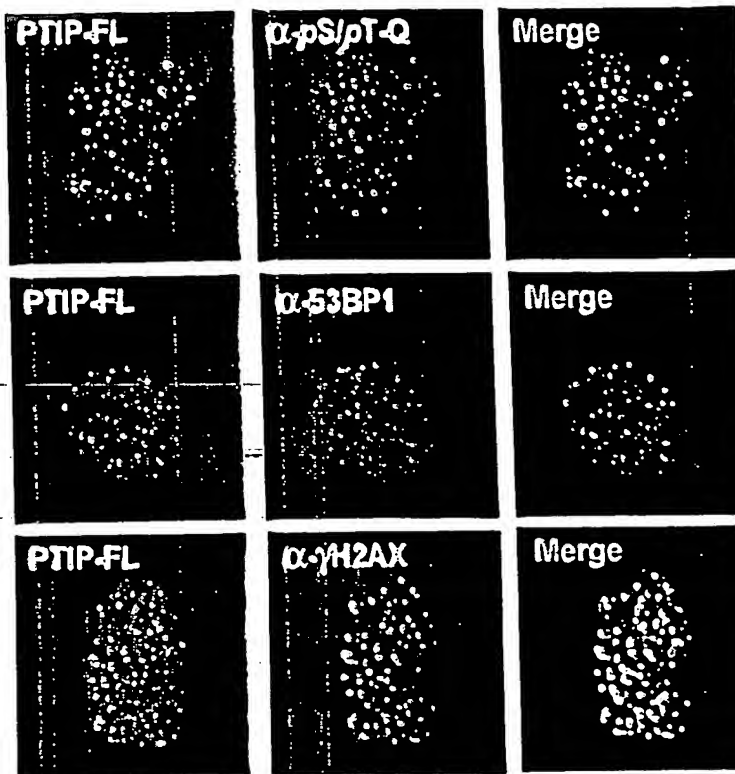
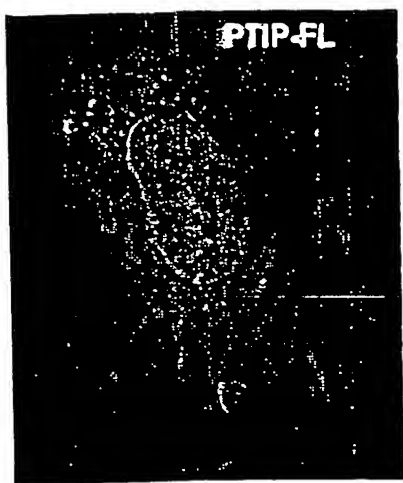
Manke et al.,

18E

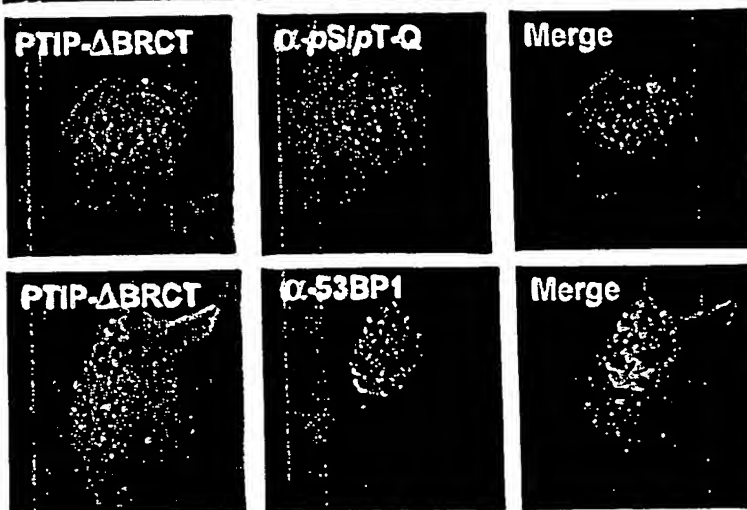
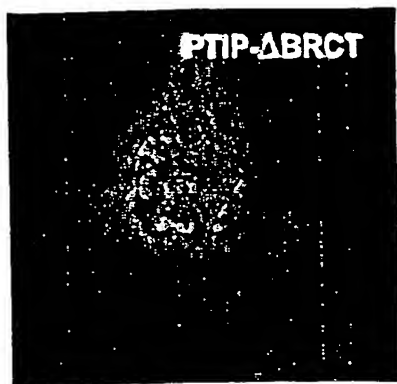
— IR

+ 10 Gy IR

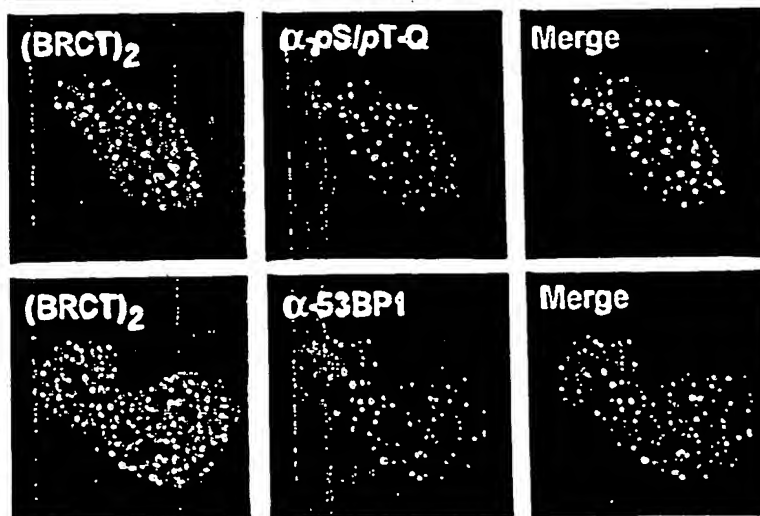
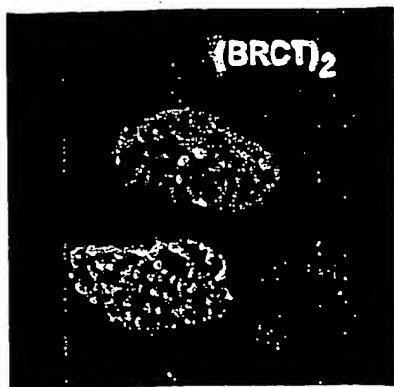
A

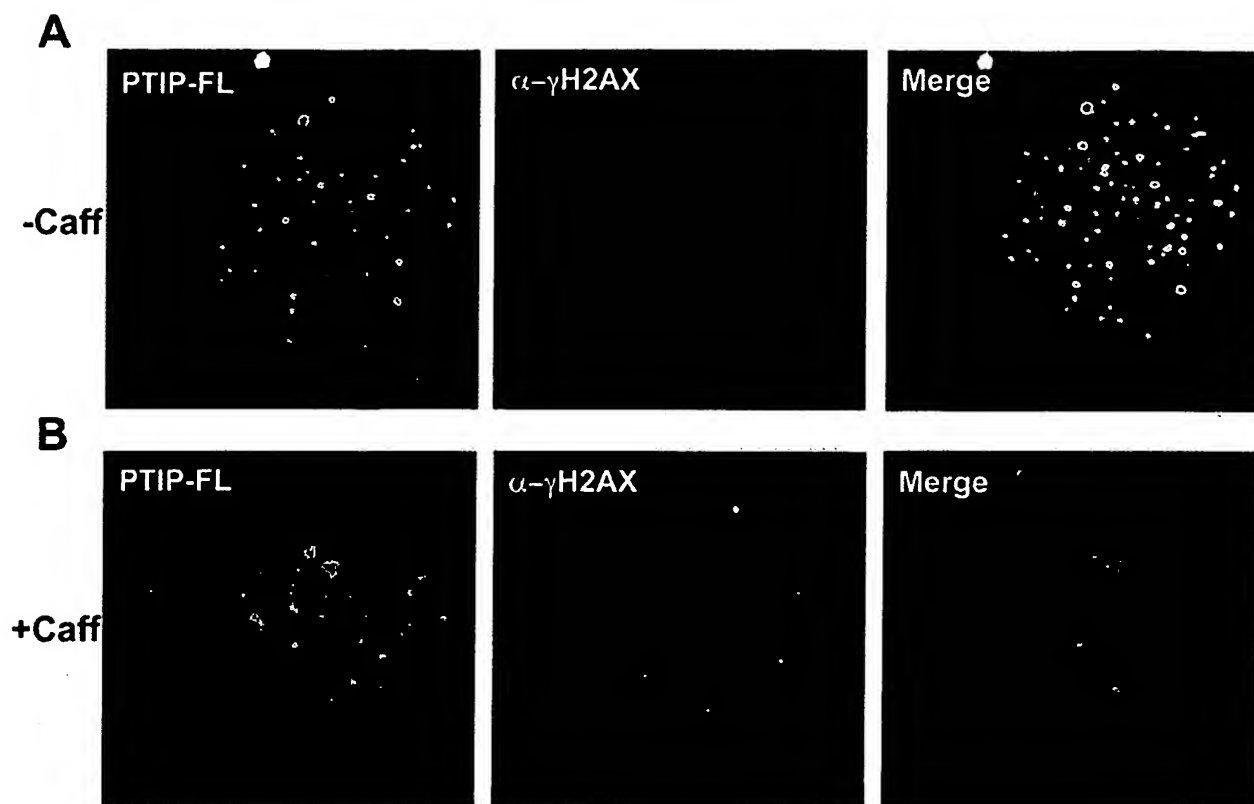


B



C





Manke et al., Fig. S2

Figure 21 A & 21B

Title: PRODUCTS AND PROCESSES FOR MODULATING
PEPTIDE-PEPTIDE BINDING DOMAIN INTERACTIONS

Applicants: Michael B. Yaffe et al.

Filing Date: November 14, 2003

Page 22 of 36

Serial No: Not Yet Assigned

Customer No: 21559

BEST AVAILABLE COPY

Figure 22
PTIP

>gi|21707458|gb|AAH33781.1| PAX transcription activation domain interacting protein 1 like
[Homo sapiens]

MAAGQNLQSSERSEMIATWSPAVRTLRLNITNNADIQQMNRPSNVAHILQTLSPATKNLEQQVNH
SQQGHTNANAVLFSQVKVTPETHMLQQQQQAQQQQQHPVLHLQPQQIMQLQQQQQQQISQ
QPYPQQPPHPFSQQQQQQQQAHPHQFSQQQLQFPQQQLHPPQQQLHRPQQQLQPFQQQHAL
QQQFHQLQQHQLQQQQLAQLQQQHSLQQQQQQQIQQQQLQRMHQQQQQQQMQSQTAPH
LSQTSQALQHQVPPQQPPQQQQQQQPPSPQQHQLFGHDPAVEIPEEGFLLGCVFAIADYPEQ
MSDKQLLATWKRIIQAHG GTVDPTFTSRCTHLLCESQVSSAYAQAIRERKRCVTAHWLNTVLKK
KKMVPPHRLHFPVAFPPGGKPCSQHIIISVTGFVDSRDDLKLMAYLAGAKYTGylCRSNTVLIC
KEPTGLKYEKAKEWRIPC VNAQWLGDILLGNFEALRQIQYSRYTAFSLQDPFAPTQHLVLNLLDA
WRVPLKVSAELLMSIRLPPKLKQNEVANVQPSSKRARIEDVPPPTKKLTPELTPFVLFTGFEPVQ
VQQYIKKLYILGGEVAESAQKCTHliASKVTRTVKFLTAISVVKHIVTPewLEECFRcQKFIDEQNYI
LRDAEAEVLFSFSLEESLKRAHVSPLFKAKYFYITPGICPSLSTMKAIVECAGGKVLSKQPSFRKL
MEHKQNSSLSEIILISCENDLHLCREYFARGIDVHNAEFVLTGVLTQTLDYESYKFN

>gj121707457:221-2494 Homo sapiens PAX transcription activation domain interacting protein 1 like, mRNA (cDNA clone MGC:45592 IMAGE:4509264), complete cds

ATGGCTGCTGGACAAACCTCCAAAGTTCTGAAAGATCAGAAATGATAGCTACCTGGAGTCC
AGCTGTACGGACACTGAGGAATATTACTAATAATGCTGACATTCAGCAGATGAACCGGCCAT
CAAATGTAGCACATATCTTACAGACTCTTTCAGCACCTACGAAAAATTTAGAACAGCAGGTGA
ATCACAGCCAGCAGGGACATACAAATGCCAATGCAGTGTCTGTTTAGCCAAGTGAAAGTGACT
CCAGAGACACACATGCTACAGCAGCAGCAGCAGGCCCAGCAGCAGCAGCAGCAGCACCCG
GTTTTACACCTTCAGCCCCAGCAGATAATGCAGCTCCAGCAGCAGCAGCAGCAGCAGATCT
CTCAGCAACCTTACCCCCAGCAGCCGCCGCATCCATTTTCACAGCAACAGCAGCAGCAGCA
GCAAGCCCATCCGCATCAGTTTTTCACAGCAACAGCTACAGTTTCCACAGCAACAGTTGCATC
CTCCACAGCAGCTGCATCGCCCTCAGCAGCAGCTCCAGCCCTTTCAGCAGCAGCATGCCCT
GCAGCAGCAGTTCATCAGCTGCAGCAGCACCAGCTCCAGCAGCAGCAGCTCGCCAGCT
CCAGCAGCAGCACAGCCTGCTCCAGCAGCAGCAGCAACAGCAGATTCAGCAGCAGCAGCT
CCAGCGCATGCACCAGCAGCAGCAGCAGCAGCAGATGCAAAGTCAGACAGCGCCACACTT
GAGTCAGACGTACAGGGCGCTGCAGCATCAGGTTCCACCTCAGCAGCCCCCGCAGCAGCA
GCAGCAACAGCAGCCACCACCATCGCCTCAGCAGCATCAGCTTTTTGGACATGATCCAGCA
GTGGAGATTCCAGAAGAAGGCTTCTTATTGGATGTGTGTTTGAATTGCGGATTATCCAGA
GCAGATGTCTGATAAGCAACTGCTGGCCACCTGGAAAAGGATAATCCAGGCACATGGCGGC
ACTGTTGACCCACCTTCACGAGTGCATGCGACGCACTTCTCTGTGAGAGTCAAGTCAGCA
GCGCGTATGCACAGGCAATAAGAGAAAGAAAGAGATGTGTTACTGCACACTGGTTAAACACA
GTCTTAAAGAAGAAGAAAATGGTACCGCCGCACCGAGCCCTTCACTTCCAGTGGCCTTCC
CACCAGGAGGAAAGCCATGTTACAGCATATTATTTCTGTGACTGGATTTGTTGATAGTGAC
AGAGATGACCTAAAATTAATGGCTTATTTGGCAGGTGCCAAATATACGGGTATCTATGCCG
CAGCAACACAGTCTCTATCTGTAAAGAACCAACTGGTTTAAAGTATGAAAAAGCCAAAGAGT
GGAGGATACCCTGTGTCAACGCCCAGTGGCTTGGCGACATTCTTCTGGGAACTTTGAGGC
ACTGAGGCAGATTCAGTATAGTCGCTACACGGCATTAGTCTGCAGGATCCATTTGCCCTA
CCCAGCATTTAGTTTTAAATCTTTTAGATGCTTGGAGAGTTCCCTTAAAGTGTCTGCAGAGT
TGTTGATGAGTATAAGACTACCTCCCAAACCTGAAACAGAATGAAGTAGCTAATGTCCAGCCTT
CTTCCAAAAGAGCCAGAATTGAAGACGTACCACCTCCCCTAAAGCTAACTCCAGAATTG
ACCCCTTTTGTGCTTTTCACTGGATTGAGCCTGTCCAGGTTCAACAGTATATTAAGAAGCTC
TACATTCTTGGTGGAGAGGTTGCGGAGTCTGCACAGAAGTGCACACACCTCATTGCCAGCA
AAGTGACTCGCACCGTGAAGTTCCTGACGGCGATTTCTGTCTGTAAGCACATAGTGACGCC
AGATGGCTGGAAGAATGCTTCAGGTGTGAGAAGTTCATTGATGAGCAGAACTACATTCTCC
GAGATGCTGAGGCAGAAAGTACTTTTCTCTTCAGCTTGAAGAATCCTTAAACGGGCACAC
GTTTCTCCACTCTTTAAGGCAAAATATTTTACATCACACCTGGAATCTGCCAAGTCTTTCC
ACTATGAAGGCAATCGTAGAGTGTGCAGGAGGAAAGGTGTTATCCAAGCAGCCATCTTTCC
GGAAGCTCATGGAGCACAAGCAGAACTCGAGTTTGTGCGAAATAATTTTAATATCTGTGAA
AATGACCTTCATTTATGCCGAGAATATTTTGCCAGAGGCATAGATGTTCACAATGCAGAGTTC
GTTCTGACTGGAGTGTCTCACTCAAACGCTGGACTATGAATCATATAAGTTTAACTGA

Figur 24
Brca1

>gi|30039659|gb|AAP12647.1| breast cancer 1, early onset [Homo sapiens]
MDLSALRVEEVQNVINAMQKILECPICLELIKEPVSTKCDHIFCKFCMLKLLNQKKGPSQCPLCKN
DITKRSLQESTRFSQLVEELLKIICAFQLDTGLEAYANSYNFAKKENNSPEHLKDEVSIQSMGYRN
RAKRLLQSEPENPSLQETSLSVQLSNLGTVRTLRQRIQPQKTSVYIELGSDSSEDTVNKATYC
SVGDQELLQITPQGTTRDEISLDSAKKAACEFSETDVTNTEHHQPSNNDLNTTEKRAAERHPEKY
QGSSVSNLHVEPCGTNTHASSLQHENSLLLLTKDRMNVEKAFCNKSQKQPLARSQHNRWAG
SKETCNDRRTPSTEKKVDLADPLCERKEWNKQKLPCSENPRDTEVPWITLNSSIQKVNEWFS
RDELLGSDSDHGESESNKAVADVLDVLNEVDEYSGSSEKIDLLASDPHEALICKSERVHSKSV
ESNIEDKIFGKTYRKKASLPNLSHVTENLIIGAFVTEPQIIQERPLTNKLKRKRRTSGLHPEDFIKK
ADLAVQKTPEMINQGTNQTEQNGQVMNITNSGHENKTKGDSIQNEKNPNPIESLEKESAFKTKA
EPISSSISNMELELNHNSKAPKKNRLRRKSSTRHHALELVVSRNLSPPNCTELQIDSCSSSEEIK
KKKYNQMPVRHSRNLQLMEGKEPATGAKKSNKPNEQTSKRHDSDTFPELKLTNAPGSFTKCSN
TSELKEFVNPSLPREEKEEKLETVKVSNAEDPKDLMLSGERVLQTERSVESSSISLVPGTDYGT
QESISLLEVSTLGAKTEPNKCVSQCAAFENPKGLIHGCKDNRNDTEGFKYPLGHEVNHRSRET
SIEMEESELDAQYLQNTFKVSKRQSFAPFSNPGNAEEECATFSAHSGSLKKQSPKVTFECEQKE
ENQKGKNESNIKPQTVNITAGFPVVGQKDKPVDNAKCSIKGGSRFCLSSQFRGNETGLITPNKH
GLLQNPYRIPPLFPIKSFVKTKCKKNLLEENFEEHSMSPEREMGNENIPSTVSTISRNNIRENVFK
EASSSNINEVGSSSTNEVGSSINEIGSSDENIQAELGRNRGPKLNAMRLGLVLQPEVYKQSLPGSN
CKHPEIKKQEYEEVVQTVNTDFSPYLISDNLEQPMGSSHASQVCSETPDDLDDGEIKEDTSFAE
NDIKESSAVFSKSVQKGELSRSPSPFTHTHLAQGYRRGAKKLESSEENLSSSEDEELPCFQHLLF
GKVNNIPSQSTRHSTVATECLSKNTEENLLSLKNSLNDCSNQVILAKASQEHHLSEETKCSASLF
SSQCSELEDLTANTNTQDPFLIGSSKQMRHQSESQGVGLSDKELVSDDEERTGLEENNQEEQ
SMDSNLGEAASGCESETSVSEDCSGLSSQSDILTQQRDTMQHNLIKLQQEMAELEAVLEQHG
SQPSNSYPSIISDSSALEDLRNPEQSTSEKAVLTSQKSSEYPISQNPEGLSADKFEVSADSSTSK
NKEPGVERSSPSKCPSLDDRWMHSCSGSLQNRNYPSEELIKVVDVEEQQLEESGPHDLTET
SYLPRQDLEGTPYLESGLSFDSDPESDPSEDRAPE SARVGNIPSSTSALKVPQLKVAESAQSPA
AAHTTDTAGYNAMESVSREKPELTASTERNKRMSMVVSGLTPEEFMLVYKFARKHHITLTNLI
TEETTHVVMKTDAEFVCERTLKYFLGIAGGKWVVSFVVTQSIKERKMLNEHDFEVRGDVVNG
RNHQGPKRARESQDRKIFRGLICCYGPFTNMPTDQLEWMVQLCGASVVKELSSFTLGTGVHPI
VVVQPDWATEDNGFHAIGQMCEAPVVTREWVLDSVALYQCQELDTYLIPQIPHSHY

Figure 25

>(gil30039658:2223-2302, 10541-10594, 19804-19881, 21381-21469, 22076-22215, 26456-26561, 29046-29091, 30413-30489, 31479-34904, 35307-35395, 43771-43942, 49733-49859, 51830-52020, 55137-55447, 58682-58769, 62426-62503, 63004-63044, 69242-69325, 75264-75318, 77187-77260, 78678-78738, 80580-80704) Homo sapiens breast cancer 1, early onset (BRCA1) gene, complete cds

ATGGATTTATCTGCTCTTCGCGTTGAAGAAGTACAAAATGTCATTAATGCTATGCAGAAAATC
TTAGAGTGTCCCATCTGTCTGGAGTTGATCAAGGAACCTGTCTCCACAAAGTGTGACCACAT
ATTTTGCAAATTTTGCATGCTGAAACTTCTCAACCAGAAGAAAGGGCCTTCACAGTGTCTTT
ATGTAAGAATGATATAACCAAAAGGAGCCTACAAGAAAGTACGAGATTTAGTCAACTTGTTGA
AGAGCTATTGAAAATCATTTGTGCTTTTTCAGCTTGACACAGGTTTGGAGTATGCAAAACAGCTA
TAATTTTGCAAAAAAGGAAAATAACTCTCCTGAACATCTAAAAGATGAAGTTTCTATCATCCAA
AGTATGGGCTACAGAAACCGTGCCAAAAGACTTCTACAGAGTGAACCCGAAAATCCTTCCTT
GCAGGAAACGAGTGTCTCAGTGTCTGAACTCTCTAAGCTTGGAACTGTGAGAACTCTGAGGACAA
AGCAGCGGATACAACCTCAAAAGACGTCTGTCTACATTGAATTGGGATCTGATTCTTCTGAA
GATACCGTTAATAAGGCAACTTATTGCAGTGTGGGAGATCAAGAATTGTTACAAATCACCCCT
CAAGGAACCAGGGATGAAATCAGTTTGGATTCTGCAAAAAAGGCTGCTTGTGAATTTTCTGA
GACGGATGTAACAAATACTGAACATCATCAACCCAGTAATAATGATTTGAACACCACTGAGAA
GCGTGCAGCTGAGAGGCATCCAGAAAAGTATCAGGGTAGTTCTGTTTCAAACCTTGCATGTGG
AGCCATGTGGCACAAATACTCATGCCAGCTCATTACAGCATGAGAACAGCAGTTTATTACTC
ACTAAAGACAGAATGAATGTAGAAAAGGCTGAATTCTGTAATAAAAGCAAACAGCCTGGCTT
AGCAAGGAGCCAACATAACAGATGGGCTGGAAGTAAGGAAACATGTAATGATAGGCGGACT
CCCAGCACAGAAAAAAGGTAGATCTGAATGCTGATCCCCTGTGTGAGAGAAAAAGAATGGAA
TAAGCAGAAACTGCCATGCTCAGAGAATCCTAGAGATACTGAAGATGTTCTTGGATAACAC
TAAATAGCAGCATTTCAGAAAGTTAATGAGTGGTTTTCCAGAAAGTATGAAGTGTAGGTTCTG
ATGACTCACATGATGGGGAGTCTGAATCAAATGCCAAAGTAGCTGATGTATTGGACGTTCTA
AATGAGGTAGATGAATATTCTGGTTCTTCAGAGAAAATAGACTTACTGGCCAGTGATCCTCAT
GAGGCTTTAATATGTAAAAGTGAAAGAGTTCCTCCAAATCAGTAGAGAGTAATATTGAAGAC
AAAATATTTGGGAAAACCTATCGGAAGAAGGCAAGCCTCCCCAACTTAAGCCATGTAAGTGA
AAATCTAATTATAGGAGCATTGTGTTACTGAGCCACAGATAATACAAGAGCGTCCCCTCACAAA
TAAATTAAGCGTAAAAGGAGACCTACATCAGGCCTTCATCCTGAGGATTTTATCAAGAAAGC
AGATTTGGCAGTTCAAAGACTCCTGAAATGATAAATCAGGGAACCTAACCAACGGAGCAGA
ATGGTCAAGTGATGAATATTACTAATAGTGGTCATGAGAATAAAACAAAAGGTGATTCTATTC
AGAATGAGAAAAATCCTAACCCAATAGAATCACTCGAAAAAGAATCTGCTTTCAAACGAAAG
CTGAACCTATAAGCAGCAGTATAAGCAATATGGAACCTCGAATTAAATATCCACAATTCAAAG
CACCTAAAAAGAATAGGCTGAGGAGGAAGTCTTCTACCAGGCATATTCATGCGCTTGAACCTA
GTAGTCAGTAGAAATCTAAGCCCACCTAATTGTAAGTGAATTGCAATTGATAGTTGTTCTAGC
AGTGAAGAGATAAAGAAAAAAGTACAACCAATGCCAGTCAGGCACAGCAGAAACCTACA
ACTCATGGAAGGTAAAGAACCTGCAACTGGAGCCAAGAAGAGTAACAAGCCAAATGAACAG
ACAAGTAAAAGACATGACAGCGATACTTTCCAGAGCTGAAGTTAACAATGCACCTGGTTC
TTTTACTAAGTGTTCAAATACCAGTGAACCTAAAGAATTTGTCAATCCTAGCCTTCCAAGAGA
AGAAAAAGAAGAGAACTAGAAACAGTTAAAGTGTCTAATAATGCTGAAGACCCCAAGATC
TCATGTTAAGTGGAGAAAGGGTTTTGCAAACTGAAAGATCTGTAGAGAGTAGCAGTATTTTCA
TGGTACCTGGTACTGATTATGGCACTCAGGAAAGTATCTCGTTACTGGAAGTTAGCACTCTA
GGGAAAGGCAAAAACAGAACCAATAAATGTGTGAGTCAGTGTGCAGCATTGAAAACCCCAA
GGGACTAATTCATGGTTGTTCCAAAGATAATAGAAATGACACAGAAGGCTTTAAGTATCCATT
GGGACATGAAGTTAACCACAGTCGGGAAACATAGCAATAGAAATGGAAGAAAGTGAACCTGAT
GCTCAGTATTTGCAGAAATACATTCAAGTTTTCAAGCGCCAGTCATTTGCTCGTTTCAAAT
CCAGGAAATGCAGAAGAGGAATGTGCAACATTCTCTGCCACTCTGGGTCCTTAAAGAAACA
AAGTCCAAAAGTCACTTTTGAATGTGAACAAAAGGAAGAAATCAAGGAAAGAATGAGTCTAA
TATCAAGCCTGTACAGACAGTTAATATCACTGCAGGCTTTTCTGTGGTTGGTCAGAAAGATA
AGCCAGTTGATAATGCCAAATGTAGTATCAAAGGAGGCTCTAGGTTTTGTCTATCATCTCAGT
TCAGAGGCAACGAACTGGACTCATTACTCCAAATAAACATGGACTTTTACAAAACCCATATC
GTATACCACCACTTTTCCCATCAAGTCATTTGTTAAACTAAATGTAAGAAAAATCTGCTAGA
GGAAACTTTGAGGAACATTCAATGTCACCTGAAAGAGAAATGGGAAATGAGAACATTCCAA
GTACAGTGAGCACAATTAGCCGTAATAACATTAGAGAAAATGTTTTTAAAGAAGCCAGCTCAA

GCAATATTAATGAAGTAGGTTCCAGTACTAATGAAGTGGGCTCCAGTATTAATGAAATAGGTT
CCAGTGATGAAAACATTCAAGCAGAACTAGGTAGAAACAGAGGGCCAAAATTGAATGCTATG
CTTAGATTAGGGGTTTTGCAACCTGAGGTCTATAAACAAAGTCTTCCTGGAAGTAATTGTAAG
CATGCTGAAATAAAAAAGCAAGAATATGAAGAAGTAGTTCAGACTGTAAATACAGATTTCTCT
CCATATCTGATTTTCAGATAACTTAGAACAGCCTATGGGAAGTAGTCATGCATCTCAGGTTTGT
TCTGAGACACCTGATGACCTGTTAGATGATGGTGAATAAAGGAAGATACTAGTTTTGCTGA
AAATGACATTAAGGAAAGTTCTGCTGTTTTTAGCAAAAGCGTCCAGAAAGGAGAGCTTAGCA
GGAGTCCTAGCCCTTTCACCCATACACATTTGGCTCAGGGTTACCGAAGAGGGGGCCAAGAA
ATTAGAGTCCTCAGAAGAGAACTTATCTAGTGAGGATGAAGAGCTTCCCTGCTTCCAACACT
TGTTATTTGGTAAAGTAAACAATATACCTTCTCAGTCTACTAGGCATAGCACCGTTGCTACCG
AGTGTCTGTCTAAGAACACAGAGGAGAATTTATTATCATTGAAGAATAGCTTAAATGACTGCA
GTAACCAGGTAATATTGGCAAAGGCATCTCAGGAACATCACCTTAGTGAGGAAACAAAATGT
TCTGCTAGCTTGTTTTCTTCACAGTGCAGTGAATTGGAAGACTTGACTGCAAATACAAACACC
CAGGATCCCTTCTTGATTGGTTCTTCCAAACAAATGAGGCATCAGTCTGAAAGCCAGGGAGT
TGGTCTGAGTGACAAGGAATTGGTTTCAGATGATGAAGAAAGAGGAACGGGCTTGGAAGAA
AATAATCAAGAAGAGCAAAGCATGGATTCAAACCTTAGGTGAAGCAGCATCTGGGTGTGAGAG
TGAAACAAGCGTCTCTGAAGACTGCTCAGGGCTATCCTCTCAGAGTGACATTTTAACCACTC
AGCAGAGGGATACCATGCAACATAACCTGATAAAGCTCCAGCAGGAAATGGCTGAAGTGA
AGCTGTGTTAGAACAGCATGGGAGCCAGCCTTCTAACAGCTACCCTTCCATCATAAGTGACT
CTTCTGCCCTTGAGGACCTGCGAAATCCAGAACAAAGCACATCAGAAAAAGCAGTATTAAC
TCACAGAAAAGTAGTGAATACCCTATAAGCCAGAATCCAGAAGGCCTTCTGCTGACAAGTT
TGAGGTGTCTGCAGATAGTTCTACCAGTAAAAATAAAGAACCAGGAGTGGAAGGTCATCCC
CTTCTAAATGCCCATCATTAGATGATAGGTGGTACATGCACAGTTGCTCTGGGAGTCTTCAG
AATAGAACTACCCATCTCAAGAGGAGCTCATTAAAGGTTGTTGATGTGGAGGAGCAACAGCT
GGAAGAGTCTGGGCCACACGATTTGACGGAAACATCTTACTTGCCAAGGCAAGATCTAGAG
GGAACCCCTTACCTGGAATCTGGAATCAGCCTCTTCTCTGATGACCCTGAATCTGATCCTTC
TGAAGACAGAGCCCCAGAGTCAGCTCGTGTGGCAACATACCATCTTCAACCTCTGCATTGA
AAGTTCCCCAATTGAAAGTTGCAGAATCTGCCAGAGTCCAGCTGCTGCTCATACTACTGAT
ACTGCTGGGTATAATGCAATGGAAGAAAGTGTGAGCAGGGAGAAGCCAGAATTGACAGCTT
CAACAGAAAGGGTCAACAAAAGAATGTCCATGGTGGTGTCTGGCCTGACCCCAGAAGAATTT
ATGCTCGTGTACAAGTTTGGCAGAAAACACCACATCACTTTAACTAATCTAATTACTGAAGAG
ACTACTCATGTTGTTATGAAAACAGATGCTGAGTTTGTGTGTGAACGGACACTGAAATATTTT
CTAGGAATTGCGGGAGGAAAAATGGGTAGTTAGCTATTTCTGGGTGACCCAGTCTATTAAAGA
AAGAAAAATGCTGAATGAGCATGATTTTGAAGTCAGAGGAGATGTGGTCAATGGAAGAAACC
ACCAAGGTCCAAAGCGAGCAAGAGAATCCCAGGACAGAAAGATCTTCAGGGGGGCTAGAAAT
CTGTTGCTATGGGCCCTTCACCAACATGCCACAGATCAACTGGAATGGATGGTACAGCTGT
GTGGTGCTTCTGTGGTGAAGGAGCTTTCATCATTACCCTTGGCACAGGTGTCCACCCAATT
GTGGTTGTGCAGCCAGATGCCTGGACAGAGGACAATGGCTTCCATGCAATTGGGCAGATGT
GTGAGGCACCTGTGGTGACCCGAGAGTGGGTGTTGGACAGTGTAGCACTCTACCAGTGCCA
GGAGCTGGACACCTACCTGATACCCAGATCCCCACAGCCACTACTGA

Fig 25 (cont'd)

Figure 26
MDC1

>gi|7661966|ref|NP_055456.1| MDC1 mediator of DNA damage checkpoint 1; nuclear factor with BRCT domains protein 1; Em:AB023051.5 [Homo sapiens]

MEDTQAIDWDVEEEEEETEQSSESLRCNVEPVGRLHIFSGAHGPEKDFPLHLGKNVVGRMPDCS
VALPFPSISKQHAEIEILAWDKAPILRDCGSLNGTQILRPPKVLSPGVSHRLRDQELILFADLLCQY
HRLDVSLPFVSRGPLTVEETPRVQGETQPQRLLLAEDSEEEVDLSERRMVKKSRTTSSSVIVPE
SDEEGHSPVLGGLGPPFAFNLSDDTVEEGQQPATEEASSAARRGATVEAKQSEAEVVTEIQLE
KDQPLVKERDNDTKVKRGAGNGVVPAGVILERSQPPGEDSDTDVDDDSRPPGRPAEVHLERAQ
PFGFIDSDTDAEEERIPATPVVPMKKRKIFHGVGTRGPGAPGLAHLQESQAGSDTDVEEGKAPQ
AVPLEKSQASMVINSDDTDEEEVSAALTLAHLKESQPAIWNRAEEDMPQRVVLLQRSQTTER
DSDTDVEEEELPVENREAVLKDHTKIRALVRAHSEKDQPPFGSDSDSVEADKSSPGIHLERSQA
STTVDJINTQVEKEVPPGSAIMHIKKHQVSEGTNQTDVKA VGGPAKLLVWSLEEAWPLHGDCE
DAEEGTSLTASVVADVRKSQLPAEGDAGAEWAAAVLKQERAHEVGAQGGPPVAQVEQDLPIR
ENLTDLVVDLTDLGESTDQREGAQVPTGRERREQHVGGTKDSEDNYGSEDLDLQATQCFLN
QGLEAVQSMEDPTQAFMLTPPQELGSPHCSFQTTGTLDEPWEVLATQPFCLRESEDSETQPF
DTHLEAYGPCLSPRAIPGDQHPESPVHTEPMGIQGRGRQTVDKVMGIPKETAERVGPERGPLE
RETEKLLPERQTDVTGEEELTKGKQDREQKQLLARDTQRQESDKNGESASPERDRESLKVEIET
SEEIQEKQVQKQTLPSKAFEREVERPVANRECDPAELEEKVPKVILERDTQRGEPEGGSQDQKG
QASSPTPEPGVGAGDLPGPTSAPVPSGSQSGGRGSPVSPRRHQKGLLNCKMPPAEKASRIAA
EKVSRGDQESPDACLPPAVPEAPAPPQKPLNSQSQKHLAPPPLSPLLPSIKPTVRKTRQDGSQ
EAPPEAPLSSELEPFHPKPKIRTRKSSRMTPFPATSAAPEHPSTSTAQPVT PKPTSQATRSTNR
SSVKTPEPVVPTAPELQPSTSTDQPVTSEPTSQVTRGRKSRSSVKTPEVTVPTAPELQISTSTDQPVT
RPVTSEPTSQATRGRKNRSSVKTPEPVVPTAPELQPSTSTDQPVTSEPTYQATRGRKNRSSVKT
PEPVVPTAPELRPSTSTDPRVTPKPTSRTTRSRNMSSVKTPEVTVPTAPELQISTSTDQPVT
PTSRTTRSRNMSSVKNPESTVPIAPELPPSTSTEQVTPPEPTSRATRGRKNRSSGKTPETLVPT
APKLEPSTSTDQPVTPEPTSQATRGRTRNRSSVKTPEVTVPTAPELQPSTSTDQPVTPEPTSQAT
RGRTRDRSSVKTPEVTVPTAPELQASASTDQPVTSEPTSRTTRGRKNRSSVKTPEVTVPAPELQ
PPTSTDRPVTPPEPTSRAATRGRTRNRSSVKTPEVTVPTAPELQISTSTDQPVTPEPTSRAATRCRTNR
SSVKTPEPVVPTAPEPHPTTSTDQPVT PKLTSRATRRKTRNRSSVKT PKPVPAASDLEPFTPTDQ
SVTPEAIAQGGQSKTLRSSTVRAMPVPTTPEFQSPVTTDQPISEPITQPSCIQRQAAGNPGSL
AAPIDHKPCSAPLEPKSQASRNQRWGAVRAAESLTAIPEPASPQLLETPIHASQIQKVEPAGRSR
FTELPKPKASQSRKSLATMDSPPHQKQPQRGEVSQKTVIIKEEEEDTAEKPGKEEDVVTPKPG
KRKRDQAEKEPNRIPSRSLRRTKLNQESTAPKVLFTGVVDARGERAVLALGGSLAGSAAEASHL
VTDRIIRRTVKFLCALGRGIPILSLDWLHQSRAKAGFFLPDEYVVDPEQEKNFGFSLQDALSRAR
ERRLLEGYEIYVTPGVQPPPPQMGEIISCCGGTYLPSMPRSYKQQRVVITCPQDFPHCSIPLRVG
LPLLSPEFLLTGVLKQEAKEAFVLSPLEMSST

Figure 27

>gi|7661965:14-6283 Homo sapiens mediator of DNA damage checkpoint 1 (MDC1), mRNA
ATGGAGGACACCCAGGCTATTGACTGGGATGTTGAAGAAGAGGAGGAGACAGAGCAATCCA
GTGAATCCTTGAGGTGTAACGTGGAGCCAGTAGGGCGGCTACATATCTTTAGTGGTGCCCA
TGGACCAGAAAAAGATTTCCCACTACACCTCGGGAAGAATGTGGTAGGCCGAATGCCTGAC
TGCTCTGTGGCCCTGCCCTTTCCATCTATCTCCAAACAACATGCAGAGATTGAAATCTTAGC
CTGGGACAAGGCACCTATCCTCCGAGACTGTGGGAGCCTTAATGGTACTCAAATCCTGAGA
CCTCCTAAGGTTTTGAGCCCTGGGGTGAGTCACCGTCTGAGGGACCAGGAATTGATTCTCTT
TGCTGACTTGCTCTGCCAGTACCATCGCCTGGATGTCTCTCTGCCCTTTGTCTCCCGGGGC
CCTCTGACAGTAGAAGAGACACCCAGAGTACAGGGAGAACTCAACCCAGAGGGCTTCTGT
TGGCTGAGGACTCGGAGGAGGAAGTAGATTTCTTTCTGAAAGGCGTATGGTAAAAAATCA
AGGACCACATCTTCCTCTGTGATAGTTCCAGAGAGTGATGAAGAGGGGCATTCCCCGGTCC
TGGGCGGCCCTTGGGCCGCCCTTTGCCCTCAATTTGAACAGTGACACAGATGTGGAAGAAGG
TCAGCAACCAGCCACAGAGGAGGCCT.CCT.CAGC.TGCCAGAAGAGGTGCCACTGTAGAGGC
AAAGCAGTCTGAAGCTGAAGTTGTAAGTGAATCCAGCTTGAAAAGGATCAGCCTTTAGTGA
AGGAGAGGGACAATGATACAAAAGTCAAGAGGGGTGCAGGGAATGGGGTGGTTCCAGCTG
GGGTGATTCTGGAGAGGAGCCAACTCCTGGAGAGGACAGTGACACAGATGTGGATGATGA
CAGCAGGCCTCCTGGAAGGCCAGCTGAGGTCCATTTGAAAGGGCTCAGCCTTTTGGCTTC
ATCGACAGCGACACTGATGCGGAAGAAGAGAGGATCCCAGCAACCCAGTTGTCAATCCTA
TGAAGAAGAGGAAGATCTTCCATGGAGTAGGTACAAGGGGTCTGGAGCACCAGGCCTGG
CCCATCTGCAGGAGAGCCAGGCTGGTAGTGATACAGATGTGGAAGAAGGCAAGGCCCCAC
AGGCTGTCCCTCTGGAGAAAAGCCAAGCTTCCATGGTTATCAACAGCGATACAGATGACGA
GGAAGAAGTCTCAGCAGCGCTGACTTTGGCACATCTGAAAGAGAGCCAGCCTGCTATATGG
AACAGAGATGCAGAAGAGGACATGCCCCAACGTGTGGTCTTCTGCAGCGAAGCCAAACCA
CCACTGAGAGAGACAGTGACACAGACGTGGAGGAGGAAGAGCTCCCAGTGGAAAATAGAG
AAGCTGTCCTCAAGGATCACACAAAGATTAGAGCCCTTGTTAGAGCACATTCAGAAAAGGAC
CAACCTCCTTTTGGGGACAGTGATGACAGTGTTGAAGCAGATAAGAGCTCACCTGGGATCC
ACCTGGAGAGAAGCCAAGCCTCCACCACAGTGACATCAACACACAAGTGGAGAAGGAAGT
CCCGCCAGGGTCAGCCATTATGCATATAAAGAAGCATCAGGTGTCTGTGGAGGGGACAAAT
CAAACAGATGTGAAAGCAGTTGGGGGACCAGCAAAGCTGCTTGTGGTATCTCTAGAGGAAG
CCTGGCCTCTGCATGGGGACTGTGAAACAGATGCAGAGGAGGGCACCTCCCTAACAGCCTC
AGTAGTTGCAGATGTAAGAAAGAGCCAGCTTCCAGCAGAAGGGGATGCTGGGGCAGAGTG
GGCTGCAGCTGTTCTTAAGCAGGAGAGAGCTCATGAGGTGGGGGCCAGGGTGGGCCACC
TGTGGCACAAGTGGAGCAGGACCTCCCTATCTCAAGAGAGAACCTCACAGATCTGGTGGTG
GACACAGACACTCTAGGGGAATCCACCCAGCCACAGAGAGAGGGAGCCAGGTCCCCACA
GGAAGGGAGAGAGAACAACATGTGGGTGGGACCAAGGACTCTGAAGACAACCTATGGTGATT
CTGAAGATCTGGACCTACAAGCTACCCAGTGCTTTCTGGAGAATCAGGGCCTGGAAGCAGT
CCAGAGCATGGAGGATGAACCTACCCAGGCCTTCATGTTGACTCCACCCCAAGAGCTTGGC
CCTTCCCATTCAGCTTCCAGACAACAGGTACCCTAGATGAACCATGGGAGGTCTGGCTA
CACAGCCATTCTGTCTGAGAGAGTCTGAGGACTCTGAGACCCAGCCTTTTGACACGCACCTT
GAGGCCTATGGACCTTGCCTGTCTCCACCTAGGGCAATACCAGGAGACCAACATCCAGAGA
GCCCAGTTACACAGAGCCAATGGGGATTCAAGGCAGAGGGGAGGCAGACTGTGGATAAAGT
CATGGGTATACCAAAAAGAAACAGCAGAGAGGGTGGGCCCTGAGAGAGGGCCATTGGAGAG
AGAAACTGAGAAACTGCTACCAGAAAGACAGACAGATGTGACAGGAGAGGGAAGAATTAACC
AAGGGGAAACAGGACAGAGAACAACAAACAGTTGTTAGCTAGAGACACCCAGAGACAAGAAT
CTGACAAAAATGGGGAAAGTGCAAGTCCTGAAAGAGATAGGGAGAGTTTGAAGGTAGAAATT
GAGACATCTGAGGAAATACAAGAGAAACAAGTACAGAAGCAGACCCTTCCAAGCAAAGCATT
TGAGAGAGAAGTAGAGAGACCAGTAGCAAACAGAGAGTGCGATCCAGCCGAGTTAGAAGAG
AAGGTGCCCAAAGTGATCCTGGAGAGAGATACACAGAGAGGGGAGCCAGAGGGAGGGAGC
CAGGACCAGAAAGGGCAGGCCTCCAGCCCAACACCAGAGCCTGGGGTGGGGGCGGGGGA
CCTTCCGGGACCTACCTCAGCCCCCGTACCTTCTGGGAGCCAGTCAGGTGGAAGGGGATC
CCCAGTGAGCCCCAGGAGGCATCAGAAAGGCCTCCTGAATTGCAAGATGCCACCTGCTGAG
AAGGCTTCCAGGATCAGAGCTGCTGAGAAGGTTTCCAGGGGCGATCAGGAATCTCCAGATG
CTTGTCTGCCTCCTGCAGTACCTGAAGCCCCAGCCCCACCCCAAAAGCCCCTTAACCTCTCA
GAGCCAGAAACATCTTGCACCTCCGCCCTTCTTTCTCCCTTTTACCTTCTATCAAGCCAAC
CGTTCGTAAGACCAGGCAAGATGGGAGTCAGGAAGCTCCAGAGGCTCCCTTGTCTCAGAG

CTGGAGCCTTTCCACCCAAAGCCTAAAATTAGAACTCGGAAGTCCTCCAGAATGACACCCTT
TCCAGCTACCTCTGCTGCCCCCTGAGCCCCACCCTTCCACCTCCACAGCCCAGCCAGTCACT
CCCAAGCCCACATCTCAGGCCACTAGGAGCAGGACAAATAGGTCTCTGTCAAGACCCCTG
AACCAGTTGTCCCCACAGCCCCCTGAGCTCCAGCCTTCCACCTCCACAGACCAGCCTGTCAC
CTCTGAGCCCACATCTCAGGTTACTAGGGGAAGAAAAAGTAGATCCTCTGTCAAGACCCCTG
AAACAGTTGTGCCCACAGCCCCCTGAGCTCCAGCCTTCCACCTCCACCGACCGACCTGTCAC
CTCTGAACCCACCTCTCAGGCTACTAGGGGAAGAAAAAATAGATCCTCTGTCAAGACCCCTG
AACCAGTTGTCCCCACAGCCCCCTGAGCTCCAGCCTTCCACCTCCACAGACCAGCCTGTCAC
TTCTGAGCCCACATATCAGGCTACTAGGGGAAGAAAAAATAGATCCTCTGTCAAGACCCCTG
AACCAGTTGTGCCCACAGCCCCCTGAGCTCCGGCCTTCCACCTCCACAGACCAGCCTGTCAC
CCCCAAGCCCACATCTCGGACCACTAGGAGCAGGACAAATATGTCCTCTGTCAAGACCCCT
GAAACAGTTGTCCCCACAGCCCCCTGAGCTCCAGATTTCCACCTCCACAGACCAACCTGTCAC
CCCTAAGCCCACATCTCGGACCACTAGGAGCAGGACAAATATGTCCTCTGTGAAGAACCCT
GAATCAACTGTCCCTATAGCCCCCTGAGCTCCCACCTTCCACCTCCACAGAGCAGCCTGTCAC
CCCTGAGCCCACATCTCGGGCTACTAGGGGAAGAAAAAATAGATCCTCTGGCAAGACCCCT
GAAACACTTGTCCCCACAGCCCCCTAAGCTCGAGCCTTCCACTTCCACAGACCAACCTGTCAC
TCCTGAGCCCACATCTCAGGCCACAGGGGCAGGACAAATAGGTCTCTGTGAAGACCCCT
GAAACAGTTGTCCCCACAGCCCCCTGAGCTCCAGCCTTCCACCTCCACAGACCAGCCTGTTA
CCCCTGAGCCTACGTCTCAGGCTACTAGGGGAAGAACAGATAGATCCTCTGTCAAGACTCC
TGAAACAGTTGTCCCCACAGCCCCCTGAGCTACAGGCTTCCGCCTCCACAGACCAGCCTGTC
ACCTCTGAGCCCACATCTCGGACCACTAGGGGAAGAAAAAATCGGTCTCTGTCAAGACCC
CTGAAACAGTTGTGCCCGCAGCCCCCTGAGCTCCAGCCTCCACCTCCACAGACCAGCCTGT
CACCCCTGAGCCCACATCTCGGGCCACTAGGGGCAGGACAAATAGGTCTCTGTCAAGACC
CCTGAATCAATTGTCCCTATAGCCCCCTGAGCTTCAGCCTTCCACCTCCAGAAACCAGCTTGT
CACCCCTGAGCCCACATCTCGGGCCACTAGGTGCAGGACAAATAGGTCTCTGTCAAGACC
CCTGAGCCAGTTGTCCCCACAGCCCCCTGAGCCCCATCCTACCACCTCCACAGACCAGCCTG
TCACCCCCAAGCTCACATCTAGGGCCACTAGGAGAAAGACAAATAGGTCTCTGTCAAGACT
CCCAAAACCAGTTGAACCAGCAGCCTCTGATCTTGAGCCTTTTACCCCCACAGACCAGTCCGT
CACCCCTGAGGCCATAGCTCAGGGTGGTCAGAGCAAAACACTGAGGTCTTCCACAGTAAGA
GCTATGCCGGTTCTACCACCCCTGAATTCATCTCCTGTCAACACAGACCAGCCTATTTC
CCCTGAGCCTATTACTCAACCCAGTTGCATCAAGAGGCAGAGAGCCGCTGGGAACCCTGGC
TCCCTCGCAGCTCCCATTTGACCATAAGCCTTGCTCTGCACCCTTGGAACCTAAATCCCAGGC
CTCAAGGAACCAAAGATGGGGAGCAGTGAGAGCAGCTGAATCCCTTACAGCCATTCTGAG
CCTGCCTCTCCCCAGCTTCTTGAGACACCAATTCATGCCTCCAGATCCAAAAGGTGGAACC
AGCAGGTAGATCTAGGTTACCCCGGAGCTCCAGCCTAAGGCCTCTCAAAGCCGCAAGAGG
TCTTTAGCTACCATGGATTACCAACCATCAAAAACAGCCCCAAAGAGGGGAAGTCTCCCA
GAAGACAGTGATTATCAAGGAAGAGGAAGAAGATACTGCAGAGAAGCCAGGGGAAGGAAGAG
GATGTCGTGACTCCAAAACCAGGCAAGAGAAAGAGAGACCAGGCAGAGGAGGAGCCCAAC
AGAATACCAAGCCGCAGCCTCCGACGGACCAAACTTAACCAAGAATCAACAGCCCCCAAAG
TGCTCTTCACAGGAGTGGTGGATGCTCGGGGAGAGCGGGCTGTGCTGGCACTGGGGGGAA
GTCTGGCTGGTTCAGCGGCAGAGGCTTCCACCTGGTCACTGATCGCATCCGCCGGACAGT
CAAGTTCCTGTGTGCCCTGGGGCGGGGAATCCCATTCTGTCCCTGGACTGGCTGCATCAG
TCCCGCAAGGCTGGTTTCTTACCCCGGATGAATATGTGGTGACCGACCCTGAGCAAG
AGAAGAACTTTGGCTTTAGCCTTCAAGACGCACTGAGCAGGGCTCGGGAGCGAAGGCTGCT
AGAGGGCTATGAGATCTATGTGACCCCTGGAGTCCAGCCACCACCACCTCAGATGGGAGAG
ATTATTAGCTGCTGTGGAGGCACATACCTACCCAGCATGCCTCGGTCTATAAGCCTCAGAG
AGTTGTGATCACATGCCCTCAGGACTTCCCTCATTGCTCCATTCCACTACGGGTTGGGCTGC
CCCTCCTCTCGCCTGAGTTCTGCTGACTGGAGTGCTGAAGCAGGAAGCCAAGCCAGAGGC
CTTTGTCCTCTCCCCTTTGGAGATGTCATCCACCTGA

FigD (contd)

Figure 28
53BP1

>gi|5032189|ref|NP_005648.1| tumor protein p53 binding protein, 1; tumor protein 53-binding protein, 1; tumor protein p53-binding protein, 1 [Homo sapiens]
MDPTGSQLDSDFSQQDTPCLIIEDSQPESQVLEDDSGSHFSMLSRHLPNLQTHKENPVLDVVS
PEQTAGEERGDN SGFNEHLKENKVADPVDSSNLDTCGSISQVIEQLPQPNTSSVLGMSVES
APAVEEEKGEELEQKEKEKEEDTSGNTTHSLGAEDTASSQLGFGVLELSQSQDVEENTVPYEVD
KEQLQSVTTNSGYTRLSDVDANTAIAKHEEQSNEDIPIAEQSSKDIPVTAQPSKDVHVVKENPPP
ARSEDMPFSPKASVAAMEAKEQLSAQELMESGLQIQKSPEPEVLSTQEDLFDQSNKTVSSDGC
STPSREEGGCSLASTPATTLLHLLQLSGQRLVQDSLSTNSSDLVAPSPDAFRSTPFIVPSSPTEQ
EGRQDKPMDTSVLSEEGGEPFQKKLQSGEPVELENPPLLPESTVSPQASTPISQSTPVFPPGSL
PIPSQPQFSDHIFIPSPSLEEQSN DGKKDGMHSSSLTVECSKTSEIEPKNSPEDLGLSLTGDS
KLMLSTSEYSQSPKMESLSSHRIDEDGENTQIEDTEPMSPVLNSKFVPAENDSILMNP AQDGEV
QLSQND DKTKGDDTDTRDDISILATGCKGREETVAEDVCIDLTCDSGSQAVPSPATRSEALSSVL
DQEEAMEIKEHHPEEGSSGSEVEEIPETPCESQGEELKEENMESVPLHLSLTETQSQGLCLQKE
MPKKECSEAMEVETSVISIDSPQKLAILDQLEHKEQEAWE EATSSEDSSVIVDVKEPSPRVDVS
CEPLEGVEKCSDSQSWEDIAPEIEPCAENRLDKEEKSVEYEGDLKSGTAETEPVEQDSSQPSL
PLVRADDPRLRLDQELQQPQTQKTSNSLTEDSKMANAKQLSSDAEAQKL GKPSAHASQSFCES
SSETPFHFTLPKEGDIIPPLTGATPPLIGHLKLEPKRHSTPIGISNYPESTIATSDVMSESMVETHDP
ILGSGKGDSGAAPDVDDKLCLRMKLVSPETEASEESLQFNLEK PATGERKNGSTAVAESVASPQ
KTMSVLSCICEARQENEARSEDPPPTPIRGNLLHFPSSQGE EKEKLEGDHTIRQSQQPMKPISP
VKDPVSPASQKMVIQGPSSPQGEAMVTDVLEDQKEGRSTNKENPSKALIERPSQNNIGIQTMEC
SLRVPETVSAATQTIKNVCEQGTSTVDQNF GKQDATVQTERGSGEKPV SAPGDDTESLHSQGE
EEFDMPQPPHGHVLRHMRITIREVRTLVRVITDVYYVDGTEVERKVTEETEEPIVECQECETEV
SPSQTGGSSGDLGDISSFSSKASSLHRTSSGTSLSAMHSSGSSGKGAGPLRGKTSGETPADFA
LPSSRGGPGKLSRPRKGVSTGTPVCEEDGDAGLGIRQGGKAPVTPRGRGRRGRPPSRTTGTR
ETAVPGPLGIEDISPNLSPDDKSFSRVVPRVPDSTRRTDVGAGALRRSDSPEIPFQAAAGPSDGL
DASSPGNSFVGLRVVAKWSSNGYFYSGKITRDVGAGKYKLLFDDGYECDVLGKDILLCDPIPLDT
EVTALSEDEYFSAGVVKGHRKESGELYYSIEKEGQRKWKYKRM AVILSLEQGNRLREQYGLGPYE
AVTPLTKAADISLDNLVEGKRKRNSNVSSPATPTASSSSSTTPTRKITESPRASMGVLSGKRKLIT
SEEERSPAKRGRKSATVKPGAVGAGEFVSPCESGDNTGEP SAELEEQRGPLPLNKTFLFLGYAFLL
TMATTSDKLASRSKLPDGP TGSSSEEEEFLEIPPFNKQYTESQLRAGAGYILED FNEAQCNTAYQ
CLLIADQHCRT RKYFLCLASGIPC VSHVWVHDSCHANQLQNYRNYLLPAGYSLEEQRILDWQPR
ENPFQNLK VLLVSDQQQNFLELWSEILMTGGAASVKQH HSSAHNKDIALGVFDVVVTD PSCPAS
VLKCAEALQLPVVSQEWVIQCLIVGERIGFKQHPKYKH DYVSH

Figure 29

>gi|5032188:174-6092 Homo sapiens tumor protein p53 binding protein, 1 (TP53BP1), mRNA
 ATGGACCCTACTGGAAGTCAGTTGGATTGAGTTTCTCTCAGCAAGATACTCCTTGCCTGAT
 AATTGAAGATTCTCAGCCTGAAAGCCAGGTTCTAGAGGATGATTCTGGTTCTCACTTCAGTAT
 GCTATCTCGACACCTTCTAATCTCCAGACGCACAAAGAAAATCCTGTGTTGGATGTTGTGT
 CCAATCCTGAACAAACAGCTGGAGAAGAACGAGGAGACGGTAATAGTGGGTTCAATGAACA
 TTTGAAAGAAAACAAGGTTGCAGACCCTGTGGATTCTTCTAACTTGGACACATGTGGTTCCAT
 CAGTCAGGTCATTGAGCAGTTACCTCAGCCAAACAGGACAAGCAGTGTCTGGGAATGTCA
 GTGGAATCTGCTCCTGCTGTGGAGGAAGAGAAGGGAGAAGAGTTGGAACAGAAGGAGAAA
 GAGAAGGAAGAAGATACTTCAGGCAATACTACACATTCCCTTGGTGTGAGATACTGCCTC
 ATCAGAGTTGGGTTTTGGGGTTCTGGAAGTCTCCCAGAGCCAGGATGTTGAGGAAAATACTG
 TGCCATATGAAGTGGACAAAGAGCAGCTACAATCAGTAACCACCAACTCTGGTTATACCAGG
 CTGTCTGATGTGGATGCTAATACTGCAATTAAGCATGAAGAACAGTCCAACGAAGATATCCC
 CATAGCAGAACAGTCCAGCAAGGACATCCCTGTGACAGCACAGCCAGTAAGGATGTACAT
 GTTGTAAGAGAGCAAAATCCACCACCTGCAAGGTGAGAGGACATGCCTTTTAGCCCCAAAGC
 ATCTGTTGCTGCTATGGAAGCAAAAGAAGAGTTGTCTGCACAAGAACTTATGGAAAGTGGAC
 TGCAGATTGAGAAGTCACCAGAGCCTGAGGTTTTGTCAACTCAGGAAGACTTGTGTTGACCAG
 AGCAATAAAACAGTATCTTCTGATGGTTGCTCTACTCCTTCAAGGGAGGAAGGTGGGTGTTT
 TTTGGCTTCCACTCCTGCCACCACTCTGCATCTCCTGCAGCTCTCTGGTCAGAGGTCCCTTG
 TCAGGACAGTCTTCCACGAATTCCTCAGATCTTGTGCTCCTTCTCCTGATGCTTCCGAT
 CTACTCCTTTTATCGTTCCTAGCAGTCCCACAGAGCAAGAAGGGAGACAAGATAAGCCAAATG
 GACACGTCAGTGTTATCTGAAGAAGGAGGAGAGCCTTTTTCAGAAGAACTTCAAAGTGGTGA
 ACCAGTGGAGTTAGAAAACCCCCCTCTCCTGCCTGAGTCCACTGTATCACCACAAGCCTCAA
 CACCAATATCTCAGAGCACACCAGTCTTCCCTCCTGGGTCACTTCTATCCCATCCCAGCCT
 CAGTTTTCTCATGACATTTTTATTCTTCCCAAGTCTGGAAGAACAATCAAATGATGGGAAG
 AAAGATGGAGATATGCATAGTTTCATCTTTGACAGTTGAGTGTCTAAAACCTCAGAGATTGAA
 CCAAAGAATTCCCCTGAGGATCTTGGGCTATCTTTGACAGGGGATTCTTGCAAGTTGATGCT
 TTCTACAAGTGAATATAGTCAGTCCCCAAAGATGGAGAGCTTGAGTTCTCACAGAATTGATG
 AAGATGGAGAAAACACACAGATTGAGGATACGGAACCCATGTCTCCAGTTCTCAATTCTAAA
 TTTGTTCTGCTGAAAATGATAGTATCCTGATGAATCCAGCACAGGATGGTGAAGTACAAC
 GAGTCAGAATGATGACAAAACAAAGGGAGATGATACAGACACCAGGGATGACATTAGTATTT
 TAGCCACTGGTTGCAAGGGCAGAGAAGAAACGGTAGCAGAAGATGTTTGTATTGATCTCACT
 TGTGATTGCGGGAGTCAGGCAGTTCGTCACCAGCTACTCGATCTGAGGCACTTTCTAGTGT
 GTTAGATCAGGAGGAAGCTATGGAATTAAGAACACCATCCAGAGGAGGGGTCTTCAGGG
 TCTGAGGTGGAAGAAATCCCTGAGACACCTTGTGAAAGTCAAGGAGAGGAACTCAAAGAAG
 AAAATATGGAGAGTGTTCGTTGCACCTTTCTCTGACTGAAACTCAGTCCCAAGGGTTGTGT
 CTTCAAAGGAAATGCCAAAAAAGAATGCTCAGAAGCTATGGAAGTTGAAACCAGTGTGAT
 TAGTATTGATCCCCCTCAAAGTTGGCAATACTTGACCAAGAATTGGAACATAAGGAACAGG
 AAGCTTGGGAAGAAGCTACTTCAGAGGACTCCAGTGTGTCATTGTAGATGTGAAAGAGCCA
 TCTCCCAGAGTTGATGTTTCTGTGAACCTTTGGAGGGAGTGGAGAAGTGCTCAGATTCCCA
 GTCATGGGAGGATATTGCTCCAGAAATAGAACCATGTGCTGAGAATAGATTAGACACCAAGG
 AAGAAAAGAGTGTAGAATATGAAGGAGATCTGAAATCAGGGACTGCAGAAACAGAACCTGTA
 GAGCAAGATTCTTCACAGCCTTCTTACCTTTAGTGAGAGCAGATGATCCTTTAAGACTTGAC
 CAGGAGTTGCAGCAGCCCCAACTCAGGAGAAAACAAGTAATTCATTAACAGAAGACTCAAA
 AATGGCTAATGCAAAGCAGCTAAGCTCAGATGCAGAGGCCAGAGCTGGGGAAGCCCTCT
 GCCCATGCCTCACAAAGCTTCTGTGAAAGTTCTAGTGAAACCCCATTTTCACTTTGCCT
 AAAGAAGGTGATATCATCCACCATGACTGGTGCAACCCACCTCTTATTGGGCACCTAAA
 ATTGGAGCCCAAGAGACACAGTACTCCTATTGGTATTAGCAACTATCCAGAAAGCACCATAG
 CAACCAAGTGTGTCATGTCTGAAAGCATGGTGAGAGCCATGATCCCATACTTGGGAGTGG
 AAAAGGGGATTCTGGGGCTGCCAGACGTGGATGATAAATTATGTCTAAGAATGAAACTGG
 TTAGTCTGAGACTGAGGCGAGTGAAGAGTCTTTGACAGTTCAACCTGGAAAAGCCTGCAACT
 GGTGAAAGAAAAAATGGATCTACTGCTGTTGCTGAGTCTGTTGCCAGTCCCAGAAAGACCAT
 GTCTGTGTTGAGCTGTATCTGTGAAGCCAGGCAAGAGAATGAGGCTCGAAGTGAGGATCCC
 CCCACCACACCCATCAGGGGGAACTTGCTCCACTTTCCAAGTTCTCAAGGAGAAGAGGAGA
 AAGAAAAATTGGAGGGTGACCATACAATCAGGCAGAGTCAACAGCCTATGAAGCCCATTAGT
 CCTGTCAAGGACCCTGTTTCTCCTGCTTCCAGAAAGATGGTCATACAAGGGCCATCCAGTCC

TCAAGGAGAGGCAATGGTGACAGATGTGCTAGAAGACCAGAAAGAAGGACGGAGTACTAAT
AAGGAAAATCCTAGTAAGGCCCTTGATTGAAAGGCCAGCCAAAATAACATAGGAATCCAAAC
CATGGAGTGTTCTTGAGGGTCCCAGAACTGTTTCAGCAGCAACCCAGACTATAAAGAATG
TGTGTGAGCAGGGGACCAGTACAGTGGACCAGAACTTTGGAAAGCAAGATGCCACAGTTCA
GACTGAGAGGGGGAGTGGTGAGAAACCAGTCAGTGCTCCTGGGGATGATACAGAGTCGCT
CCATAGCCAGGGAGAAGAAGAGTTTGATATGCCTCAGCCTCCACATGGCCATGTCTTACATC
GTCACATGAGAACAATCCGGGAAGTACGCACACTTGTCACCTCGTGTCATTACAGATGTGTAT
TATGTGGATGGAACAGAAAGTAGAAAGAAAAGTAACTGAGGAGACTGAAGAGCCAATTGTAGA
GTGTCAGGAGTGTGAACTGAAGTTTCCCTTCACAGACTGGGGGCTCCTCAGGTGACCTG
GGGGATATCAGCTCCTTCTCCTCCAAGGCATCCAGCTTACACCGCACATCAAGTGGGACAA
GTCTCTCAGCTATGCACAGCAGTGAAGCTCAGGGAAAGGAGCCGGACCACTCAGAGGGA
AAACCAGCGGGACAGAACC CGCAGATTTTGCCTTACCCAGCTCCCGAGGAGGCCCAGGAAA
ACTGAGTCCTAGAAAAGGGGTGAGTCAGACAGGGACGCCAGTGTGTGAGGAGGATGGTGA
TGCAGGCCCTTGGCATCAGACAGGGAGGGAAGGCTCCAGTCACGCCCTCGTGGGCGTGGGCG
AAGGGGCCGCCACCTTCTCGGACCACTGGAACCAGAGAAACAGCTGTCCTGGCCCCCTT
GGGCATAGAGGACATTTACCTAACTTGTCACCAGATGATAAATCCTTCAGCCGTGTCGTGC
CCCGAGTGCCAGACTCCACCAGACGAACAGATGTGGGTGCTGGTGCTTTGCGTCGTAGTGA
CTCTCCAGAAATTCCTTTCAGGCTGCTGCTGGCCCTTCTGATGGCTTAGATGCCTCCTCTC
CAGGAAATAGCTTTGTAGGGCTCCGTGTTGTAGCCAAGTGGTCATCCAATGGCTACTTTTAC
TCTGGGAAAATCAGACGAGATGTCGGAGCTGGGAAGTATAAATTGCTCTTTGATGATGGGTA
CGAATGTGATGTGTTGGGCAAAGACATTCTGTTATGTGACCCCATCCCGCTGGACACTGAAG
TGACGGCCCTCTCGGAGGATGAGTATTTAGTGCAGGAGTGGTGAAAGGACATAGGAAGGA
GTCTGGGGAAGTGTACTACAGCATTGAAAAAGAAAGGCCAAAGAAAGTGGTATAAGCGAATG
GCTGTATCCTGTCTTGAGCAAGGAAACAGACTGAGAGAGCAGTATGGGCTTGGCCCCCT
ATGAAGCAGTAACACCTCTTACAAAGGCAGCAGATATCAGCTTAGACAATTTGGTGGAAGGG
AAGCGGAAACGGCGCAGTAACGTGAGCTCCCGAGCCACCCCTACTGCCTCCAGTAGCAGCA
GCACAACCCCTACCCGAAAGATCACAGAAAGTCCTCGTGCCTCCATGGGAGTTCTCTCAGG
CAAAAGAAAACCTTATCACTTCTGAAGAGGAACGGTCCCCTGCCAAGCGAGGTGCAAGTCT
GCCACAGTAAAACCTGGTGCAGTAGGGGCAGGAGAGTTTGTGAGCCCTGTGAGAGTGGA
GACAACACCGGTGAACCCCTCTGCCCTGGAAGAGCAGAGAGGGCCTTTGCCTCTCAACAAGA
CCTTGTTTCTGGGCTACGCATTTCTCCTTACCATGGCCACAACCAGTGACAAGTTGGCCAGC
CGCTCCAAACTGCCAGATGGTCTACAGGAAGCAGTGAAGAAGAGGAGGAATTTTTGGA
TTCTCCTTTCAACAAGCAGTATACAGAATCCCAGCTTCGAGCAGGAGCTGGCTATATCCTT
GAAGATTTCAATGAAGCCAGTGTAACACAGCTTACCAGTGTCTTCTAATTGCGGATCAGCA
TTGTGCAACCCGGAAGTACTTCTGTGCCTTGCCAGTGGGATTCTTGTGTGTCTCATGTCT
GGGTCCATGATAGTTGCCATGCCAACCAGCTCCAGAACTACCGTAATTATCTGTTGCCAGCT
GGGTACAGCCTTGAGGAGCAAAGAATTCTGGACTGGCAACCCCGTGAAAATCCTTTCCAGA
ATCTGAAGGTACTCTTGGTATCAGACCAACAGCAGAACTTCTGGAGCTCTGGTCTGAGATC
CTCATGACTGGTGGTGACGCTCTGTGAAGCAGCACCATTCAAGTGCCCATACAAAGATAT
TGCTTTAGGGGTATTTGATGTGGTGGTGACGGACCCCTCATGCCAGCCTCGGTGCTGAAG
TGTGCTGAAGCATTGCAGCTGCCTGTGGTGTGACAAAGAGTGGGTGATCCAGTGCCTCATTG
TTGGGGAGAGAATTGGATTCAAGCAGCATCCAAAATATAAACACGATTATGTTTCTCACTAA

Fig 29 (cont'd)

Figure 30
Rad9

>gi|6320423|ref|NP_010503.1| Required for-DNA damage-induced G2 arrest in mitosis, required for ionizing radation-induced G1 arrest, and other cdc13-induced G2 arrest in meiosis; Rad9p [Saccharomyces cerevisiae]

MSGQLVQWKSSPDRVTQSAIKEALHSPLADGDMNEMNVPVDPLENKVNSTNIIEGSPKANPNPV
KFMNTSEIFQKSLGLLDESPRHDELNIEVGDNDRPNANILHNERTPDLDRIANFFKSNRTPGKE
NLLTKYQSSDLEDTPMLRKKMTFQTPTDPLEQKTFKKLKSDTGFCYYGEQNDGEENASLEVTE
ADATFVQMAERSADNYDCALEGIVTPKRYKDELSKSGGMQDERVQKTQIMISAESPNSISSYDK
NKITGNGRTRNVNKFVNNNEDNIGAIEEKNPVKKKSENYSSDDLRENNQIIQSESEEINELEK
NLNVSGRENDVNNLDIDINSVSGTPSRNNAEEEMYSSSVNNREPSKKWIFRYSKDKTENNSN
RSTQIVNNPRTQEMPLDSISIDTQPLSKSFNTETNNELETQIIVSSLSQGISAQKGPVFHSTGQTEE
IKTQIINSPEQNALNATFETPVTLSRINFEPILEVPETSSPSKNTMSKPSNSSPIPKEKDTFNIHERE
VETNNVFSNDIQNSSNAATRDDIIIAGSSDFNEQKEITDRIYLQLSGKQISDSGSDETERMSPNEL
DTKKESTIMSEVELTQELPEVEEQDQLQTSPKKLVVEEETLMEIKKSKGNSLQLHDDNKECNSDK
QDGTESLDVALIEHESKGQSSELQKNLMQLFPSESQEIIQNRRTIKRRQKDTIEIGEEEEENRSTKT
SPTKHLKRNSDLDAASIKREPSCSITIQTGETGSGKDSKEQSYVFPEGIRTADNSFLSKDDIIFGNA
VWCQYTWNYKFYPGILLEVDTNQDGCWIYFETGRSLTKDEDIYYLDIRIGDAVTFDGNEYVVVGL
ECRSHDLNIIIRCIRGYDTVHLKKKNASGLLGKRTLKALSSISLDLSEWAKRAKILEDNEKNKGDA
YRYLRHPIRGRKSMTNVLSPKKHTDDEKDINTHTEVYNNEIESSSEKKEIVKKDSRDALAEHAGA
PSLLFSSGEIRTGNVFDKCIFVLTSLFENREELRQTIESQGGTVIESGFSTLFNFTHPLAKSLVNKG
NTDNIRELALKLAWKPHSLFADCRFACLITKRHLRSLKYLETLALGWPTLHWKFISACIEKKRIVPH
LIYQYLLPSGESFRLSLDSPSKGGIIKSNNIFSFTYQFLRGSNLRDQICGVKKMLNDYIVIVWGRSE
LDSFVKFAFACLSAGRMLTIDLPNIDVDDTEPLLNALDSLVPRIGSELNRKCLKFLIYANENNGKSQ
MKLLERLRSQISLKFKKFNIFHTESKEWLIQTIINEDTGFHDDITDNDIYNTISEVR

Figure 31

>gil37362627:c903471-899542 *Saccharomyces cerevisiae* chromosome IV, complete
 chromosome sequence

ATGTCAGGCCAGTTAGTTCAATGGAAAAGCTCTCCAGATCGAGTCACCCAAAGCGCTATAAA
 GGAAGCACTGCATTCTCCCTTGGCTGATGGCGACATGAACGAAATGAATGTTCCCGTTGATC
 CGTTGGAAAACAAGGTAAATAGCACAAACATAATCGAAGGAAGTCCCAAAGCAAATCCAAAT
 CCTGTCAAGTTTATGAATACAAGTGAGATATTTCAAAAATCTCTGGGATTACTTGACGAGAGT
 CCAAGACATGATGATGAGTTAAATATTGAAGTAGGAGATAATGATCGACCAAATGCTAACATA
 TTGCATAATGAAAGGACTCCTGACCTTGACCGAATTGCTAACTTTTTCAAAAGCAATCGAACC
 CCTGGTAAAGAAAATCTTTTGACCAAATATCAAAGCTCCGATCTGGAAGACACTCCTCTGATG
 TTAAGAAAAAAAATGACTTTTTCAAACCTCAAATGATCCATTGGAACAGAAAACCTTCAAAAAG
 TTGAAGTCAGATACTGGGTTTTGCTATTATGGAGAGCAGAATGATGGAGAAGAAAATGCGTC
 ATTAGAAGTTACAGAGGGCGGATGCCACTTTTGACAGATGGCTGAACGTTCTGCTGATAATT
 ATGAGTGTGGATTGGAAGGAATTTGTTAGAGGTAAAAGATATAAAGAGGAATFAAGTAAAAGTG
 GAGGAATGCAAGATGAACGAGTTCAAAAAATCAAATCATGATATCAGCAGAATCACCTAATT
 CGATAAGCTCTTATGACAAGAACAAAATTACCGGGAATGGCCGGACCACAAGAAATGTAAAC
 AAGGTTTTTAACAATAACGAAGATAACATAGGAGCTATCGAGGAAAAAATCCAGTAAAAAAG
 AAAAGTGAGAATATTATCATCAGATGATCTCAGAGAACGGAACAATCAAATAATACAAAGTAAT
 GAATCAGAGGAGATTAACGAATTGGAAAAGAATCTGAATGTTTCGGGTAGAGAGAATGACGT
 GAACAATTTAGATATCGATATTAATAGTGCTGTGTCTGGCACCCCTTCACGCAACAATGCGG
 AAGAAGAAATGTATTCCAGTGAGAGTGTAACAATCGGGAACCATCAAAGAAGTGGATATTC
 CGATACTCAAAGACAAAACGGAATAATAGCAATAGATCTACGCAAAATAGTCAATAATCCA
 AGAACACAGGAAATGCCTTTAGATAGTATTTCAATCGATACGCAACCCTTATCTAAAAGTTTC
 AATACCGAAACAAATAATGAATTAGAGACACAGATAATTGTTTCATCGCTTTCCCAAGGCATA
 TCTGCTCAGAAGGGACCTGTTTTTCACTTCTACTGGCCAGACAGAAGAAATAAAAACCCAAATA
 ATAAATTTCTCCTGAACAAAATGCTTTGAATGCAACCTTTGAAACTCCCGTTACTCTTTCTCGG
 ATTAATTTTGAACCCATATTGGAAGTTCCTGAGACTAGTTCACCATCTAAGAATACGATGTCA
 AAACCTCGAATTCTTCACCTATTCCGAAGGAAAAAGATACATTTAATATACACGAGAGAGAA
 GTAGAGACAAACAATGTTTTTCAAACGATATACAAAATTTCTCAAATGCAGCTACCAGAGAT
 GACATTATCATAGCCGTTTCTGATTTCAACGAACAAAAGGAAATAACCGATAGAATATAC
 TTACAACCTTTCAGGAAAGCAAATATCTGATTCAGGAAGTGATGAAACAGAACGTATGTCCCA
 AATGAGCTTGATACGAAAAAGGAAAGTACAATCATGAGCGAGGTTGAACTAACCCAAGAACT
 GCCTGAAGTTGAAGAGCAGCAAGATCTTCAAACGTCTCCAAAAAAGCTGGTAGTCGAGGAA
 GAACTTTAATGGAGATAAAAAAAGCAAGGGGAACTCACTTCAGCTTCATGATGATAATAAA
 GAATGCAATTCAGATAAACAAGATGGCACAGAGTCTTTGGATGTAGCTTTGATTGAACACGA
 AAGCAAAGGACAGAGCTCAGAACTTCAGAAAAACCTCATGCAATTATTTCCAAGTGAGTCAC
 AGGAGATTATTCAGAACCGAAGAACAATAAAGCGACGTCAAAAAGATACAATAGAGATCGGT
 GAAGAGGAGGAGAACAGAAGCACTAAGACATCACCGACAAAACACCTCAAAGGAAATTCAG
 ATTTGGATGCTGCTTCTATCAAAAGGGAACCGTCTTGACGATTACCATACAAACAGGGGAG
 ACAGGTTCCGGGCAAAGACTCTAAGAAGACAGTCTTACGTGTTTCCTGAAGGTATTAGAACGGC
 AGATAATAGTTTCTTATCGAAAGACGACATAATTTTGGAAATGCGGTATGGTGTCAGTATAC
 GTGGAATTACAAATTTTATCCGGGTATTTATTGGAAGTTGACACTAATCAAGATGGCTGTTG
 GATTTATTTTCAAAACAGGAAGATCGCTAACCAAGATGAGGACATCTACTACTTAGATATTAG
 AATAGGGGATGCTGTTACCTTTGATGGAAATGAGTACGTAGTCGTTGGTCTAGAATGTCGTA
 GCCATGATCTCAACATAATAAGATGTATTCGAGGATATGATACGGTTCATTTGAAAAA
 ATGCAAGCGGATTGTTGGGGAAAAGGACGTTAATTAAGCACTAAGCTCGATCAGTCTTGAC
 CTAAGCGAGTGGGCTAAAAGAGCGCAAGATCATATTAGAAGATAATGAGAAAAATAAAGGCGA
 CGCGTATAGGTACTTGAGACATCCCATTAGGGGAAGGAAATCAATGACCAATGTTCTGTCTC
 CGAAGAAACATACTGATGACGAAAAGGACATAAATACGCATACTGAAGTGTACAATAACGAA
 ATAGAATCGAGCTCCGAAAAGAAGGAAATTGTTAAAAAGGATTCTAGAGACGCATTAGCTGA
 ACATGCAGGAGCGCCAAGCCTGCTTTTTTCTTCTGGTGAAATCAGAACAGGGAATGTATTTG
 ATAAATGTATTTTGTGTTTGACAAGCCTATTGAAAATAGAGAGGAACCTTCGACAGACCATTG
 AATCGCAAGGCGGCACTGTAATTGAGTCAGGATTTTCCACTTTATTTAACTTCACTCATCCGC
 TAGCTAAATCTTTAGTCAATAAAGGTAATACAGATAATATTGAGAATTGGCCTTGAAGCTAG
 CCTGGAAACCTCATTCCCTATTTGCAGACTGCAGATTTGCTTGCCTAATCACAAAACGGCATT
 TAAGAAGCTTAAAGTACTTAGAACTTTGGCGTTGGGGTGGCCTACACTACACTGGAAATTC

ATAAGTGCATGCATTGAAAAGAAAAGAATAGTACCACATTTAATATACCAATACCTATTACCTT
CGGGTGAAAGTTTTCGGTTATCGTTAGATTCTCCATCAAAGGGAGGAATCATTAAATCCAACA
ATATTTTTTTCATTTTATACACAATTCTTACGCGGATCTAATTTAAGAGATCAGATATGTGGAGT
GAAGAAAATGTTAAATGACTACATTGTTATTGTTTGGGGTAGATCTGAGTTGGACAGTTTTGT
CAAAATTTGCTTTTGCATGTTTGAGCGCAGGTAGAATGCTTACAATTGATTTACCCAATATTGA
TG TAGATGATACAGAGCCATTGTTAAATGCCTTAGATTCTTTAGTACCCAGAATAGGATCAGA
ATTATCTAATCGAAAGTTAAAGTTTCTCATATATGCTAACGAAAATAATGGTAAATCTCAGATG
AAGCTTCTCGAAAGATTGAGAAGTCAAATATCACTGAAATTTAAGAAATTTAATTACATATTTT
ACACTGAATCTAAAGAATGGCTAATTCAGACAATAATTAACGAGGACACTGGTTTTTCACGATG
ATATTACGGACAATGATATATACAACACTATTTCTGAGGTTAGATGA

(Fig 31 contd)